



University Bulletin

Series 7 Number 7

ANNOUNCEMENTS
OF THE
COLLEGE
OF
ARTS, PHILOSOPHY AND SCIENCE
OF THE
OHIO STATE UNIVERSITY
FOR
1903-1904

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COLUMBUS
PUBLISHED BY THE UNIVERSITY

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DAYS AND DATES

1903

Summer Session, Lake Laboratory, Sandusky, June 15 to September 15.			
Entrance Examinations (8 A. M.).....	{	Monday, September, 21	
		Tuesday, September, 22	
First Term begins—Registration Day.....		Tuesday, September, 22	
Lectures and Class-work begin.....		Wednesday, September, 23	
Meeting of Trustees.....		Wednesday, September, 23	
President's Annual Address (11 A. M.).....		Friday, September, 25	
Latest Date of Admission to candidacy for a degree at the Commencement of June, 1904		Wednesday, October, 7	
Thanksgiving Recess.....	{	Thursday, November, 26	
		Friday, November, 27	
First Term Ends		Wednesday, December, 23	

Christmas Vacation.

1904

Second Term begins—Registration Day.....	Tuesday, January, 5
Second Term ends.....	Friday, April, 1

Spring Recess.

Third Term begins—Registration Day.....	Wednesday, April, 6
Meeting of Trustees	Wednesday, April, 6
Competitive Drill—Cadet Battalion.....	Saturday, May, 28
Memorial Day.....	Monday, May, 30
Final Examinations	{
	Monday, June, 13
	to
	Friday, June, 17
Baccalaureate Sermon	Sunday, June, 19
Entrance Examinations (8 A. M.)	{
	Monday, June, 20
	Tuesday, June, 21
Class Day.....	Monday, June, 20
Meeting of Trustees	Tuesday, June, 21
Alumni Day.....	Tuesday, June, 21
COMMENCEMENT	Wednesday, June, 22

Summer Vacation.

Summer Session, Lake Laboratory, Sandusky, June 15 to September 15.	
Entrance Examinations (8 A. M.).....	Monday, September, 19
First Term begins—Registration Day.....	Tuesday, September, 20
Lectures and Class-work begin	Wednesday, September, 21
Meeting of Trustees	Wednesday, September, 21
President's Annual Address (11 A. M.).....	Friday, September, 23

Board of Trustees

1903-1904

THOMAS J. GODFREY.....	Celina.....	May 13, 1903
J. McLAIN SMITH.....	Dayton.....	“ 1904
PAUL JONES.....	Columbus.....	“ 1905
OSCAR T. CORSON.....	Columbus.....	“ 1906
DAVID M. MASSIE.....	Chillicothe.....	“ 1907
JOHN T. MACK.....	Sandusky.....	“ 1908
MYRON T. HERRICK.....	Cleveland.....	“ 1909

Officers of the Board

OSCAR T. CORSON.....	President
PAUL JONES.....	Vice President
ALEXIS COPE.....	Secretary
F. W. PRENTISS.....	Treasurer

Committees of the Board

EXECUTIVE	FARM	FINANCE
T. J. GODFREY	J. M. SMITH	D. M. MASSIE
J. M. SMITH	J. T. MACK	PAUL JONES
PAUL JONES	O. T. CORSON	M. T. HERRICK
FACULTY AND COURSES OF STUDY		
J. T. MACK	O. T. CORSON	T. J. GODFREY

Ohio State University

Organization

The Ohio State University is a part of the public educational facilities maintained by the State. The governing body of the institution is a board of seven trustees appointed by the governor of the state and confirmed by the senate, for terms of seven years as provided in the law organizing the University. The original endowment by the United States has been supplemented and the objects of the University promoted by a permanent annual grant from the United States, by special appropriations of the General Assembly, and by a permanent annual grant from the state. In accordance with the spirit of the law under which it is organized, the University aims to furnish ample facilities for education in the liberal and industrial arts, the sciences and the languages, and for thorough technical and professional study of agriculture, engineering in its various departments, veterinary medicine, pharmacy and law. Through the aid which has been received from the United States and from the State it is enabled to offer its privileges, with a slight charge for incidental expenses, to all persons of either sex who are qualified for admission.

The University comprises six Colleges as follows:—The College of Arts, Philosophy and Science, and five professional and technical Colleges: The College of Agriculture and Domestic Science, the College of Engineering, the College of Law, the College of Pharmacy and the College of Veterinary Medicine.

Each College is under the direction of its own Faculty, which has power to act in all matters pertaining to the work of students in that College. The instructional force of the University in all its Colleges in 1902-1903 numbered 105, besides 20 fellows assisting in laboratory and other departmental work. There were 1712 students enrolled.

The curriculum of the College of Arts, Philosophy, and Science includes the following studies. Each study represents several (some of them, many) courses, or subjects, which are freely offered to students properly prepared to undertake them: Greek, Latin, German, French, Spanish, Italian, English, Rhetoric, History, Political Science, Administration, Economics, Commerce, Sociology, Psychology, Ethics, Philosophy, Education, Public Speaking, Mathematics, Anatomy, Bacteriology, Biology, Physiology, Astronomy, Botany, Chemistry,

Geology, Physics, Zoölogy. A limited amount of work in Drawing, Photography, Art, Mineralogy, Metallurgy, Land Surveying, Thermodynamics, Electrical Engineering, Law, and Domestic Science is also open to students of the College of Arts, Philosophy and Science. The work is described in full on the subsequent pages of this Bulletin.

Location and Buildings

The University is situated within the corporate limits of the city of Columbus, two miles north of the Union Station and about three miles from the State Capitol. The University grounds consist of three hundred and forty-five acres, bounded east and west by High Street and the Olentangy River respectively. The western portion, about 235 acres, is devoted to agricultural and horticultural purposes, and is under the management of the College of Agriculture and Domestic Science. The eastern portion is occupied by the principal University buildings, campus, athletic and drill grounds, a park-like meadow, and a few acres of primitive forest.

The grounds are laid out with care, and ornamented with trees, shrubs and flower beds; and are so managed as to illustrate the instruction in botany, horticulture, forestry, landscape gardening and floriculture.

The University has fifteen buildings devoted to instruction, a boiler house, power house, two dormitories, six residences and several farm buildings. These structures represent an investment for construction of about nine hundred thousand dollars. The equipment and apparatus amount to about one hundred and seventy thousand dollars. The land now occupied as a site, with the farm, is valued at one million five hundred thousand dollars.

The University may be reached by either the North High Street or Neil Avenue electric cars. Those wishing to go to the principal buildings of the University, to the residences on the grounds, or to the athletic field, should take a High Street car going north. Those wishing to visit the Emerson McMillin Observatory, the Veterinary Hospital, Townshend Hall, Horticultural Hall or the dormitories, will find the Neil Avenue cars more convenient.

Libraries

THE UNIVERSITY LIBRARY.

The University Library contains about 47,000 volumes. There are also department libraries, collections of books specially needed in connection with laboratory and class room work deposited in the several departments. During term time the Library is open six days in the week, legal holidays being excepted. From Monday until Friday the hours are from 7:30 a. m. until 9:30 p. m.; Saturday from 7:30 a. m. until 4 p. m.

STATE LIBRARIES.

Students are privileged in being near the two State libraries. The

Ohio State Library numbers 86,000 volumes, together with 20,000 in the travelling library, which is a circulating one for all the citizens of Ohio. The State Law Library is the largest and most complete law library in the State. It contains complete sets of the English, Scotch, Irish, Canadian, United States and State reports, statutes and digests. The important legal periodicals are on file.

CITY LIBRARIES.

The students of the University, as residents of Columbus, have access to the City Library and the Public School Library, under the usual regulations. The City Library numbers 36,000 volumes. The Public School Library numbers almost 55,000 volumes.

Laboratories

The laboratories of the University are the most extensive in Ohio. A brief description of some of them is given on subsequent pages of this Announcement. The following are the laboratories most prominent in the work of the College of Arts, Philosophy and Science.

LABORATORY.	BUILDING.	DIRECTOR.
Anatomy and Physiology	Biological Hall	Professor Bleile.
Astronomy	Astronomical Obser- vatory	Professor H. C. Lord.
Bacteriology	Veterinary Hall	Professor Morrey.
Botany	Botanical Hall	Professor Kellerman.
Chemistry	Chemical Hall.	Professor McPherson.
Domestic Science	Hayes Hall	Professor Stoner.
Drawing	Hayes Hall	Professor Bradford.
Electrical Engineering..	Electrical Building ...	Professor Caldwell.
Metallurgy	Chemical Hall	Professor N. W. Lord.
Experimental Psychol- ogy	Main Building	Asst. Professor Haines.
Physics	Main Building	Professor Thomas.
(Appropriation has been made for a new Physical Laboratory Building.)		
Zoölogy	Biological Hall	Professor Osborn.

Besides the above laboratories at Columbus, the University maintains a lake laboratory at Sandusky during the summer vacation, where it occupies a convenient building close to the waters of the bay and convenient to good boarding places. It has good facilities in the way of boats, tables, aquaria, collecting appliances, microscopes and reagents. There are opportunities for special research in any branch of biology. The professors of the departments of Botany and Zoölogy with their assistants constitute the staff of instruction. The courses are open to students and teachers generally. Investigators engaged upon special problems relating to the fauna or flora of the region may be given the privilege of the laboratory without charge. For the courses of instruction, a fee of twenty dollars is charged, admitting to two full courses of eight weeks.

For further information write for special circular on Lake Laboratory.

Seminaries

Seminaries have been organized in several of the departments to ensure the systematic supervision of individual research. By this arrangement advanced students within a department are brought together for cooperative research and for comparison and criticism of methods and results. At present the following seminars are organized, some of them exclusively for graduates, and others for graduates and advanced undergraduates:

American History,	Professor Knight.
Chemistry,	Professor McPherson.
Economics,	Professor Clark.
Education,	Associate Professor Major.
English Literature,	Associate Professor Taylor.
Ethics,	Professor Scott.
French,	Professor Bowen.
German,	Professor Eggers.
Latin,	Assistant Professor Elden.
Philosophy,	Assistant Professor Haines.
Political Science,	{ Professor Knight,
	{ Assistant Professor Smith.
Rhetoric,	Professor Denney.
English Philology,	Assistant Professor McKnight.
Sociology,	{ Professor Clark.
	{ Assistant Professor Hagerty.

Fellowships

To encourage graduates of this University, and of other similar and approved institutions in this State, to continue their studies and to undertake advanced work leading to the higher degrees, the University authorities have established fellowships in several departments. These demand about one-half of the time of the fellow for laboratory or other similar assistance—as far as possible along the line of his graduate study. The remainder of his time is given to graduate work. The fellowships pay from \$250 to \$300 for the University year. At present there are three such fellowship in Chemistry and in Rhetoric, two in Botany, and one each in Economics, Mathematics and Zoology, and a few others in the technical and professional colleges.

There are also two fellowships endowed by Mr. Emerson McMillin, of New York known as the Emerson McMillin Fellowship in Astronomy, and the Emerson McMillin Fellowship in Economics. The former has an annual value of \$300, the latter \$250. These differ from the University fellowships in that the holder is not required to render assistance in the department, and is expected to devote his entire time to graduate study. Appointments to all fellowships are made annually in April or

May for the following year on recommendation of the head of the department.

Prizes

Through the generosity of Hon. Wm. J. Bryan an annual prize of fifteen dollars is offered for the best essay on the principles underlying the form of Government of the United States. Competition for this prize is open to all students of the University.

Other prizes are offered in special departments, for which see department circulars or the heads of departments.

Expenses

The incidental fee of eighteen dollars a year is the only fee charged to all students (except those holding scholarships), and is payable one-third at the opening of each term. Such laboratory fees as are charged to students pursuing laboratory courses in science are detailed in the University Catalogue.

The cost of living, which is the chief item of expense, is as reasonable in Columbus as in most college towns. Furnished rooms may be secured at prices ranging from one dollar a week upward, and the cost of table board is from two dollars and twenty-five cents upward. The uniform required of all members of the battalion costs about fourteen dollars. In the matter of expense much is dependent upon the personal taste and habits of the student. There is nothing about the State University requiring a large expenditure of money; economy and careful living are the rule. The University distinctly encourages these things, and will use every means to discourage a lavish expenditure of money as inconsistent with the best interests of the student or of college life. Two hundred and fifty dollars may be regarded as sufficient money to provide for reasonable expenses for a year at the University.

Convocation and University Lectures

A weekly convocation is held at 10 o'clock on Wednesdays in the University Chapel. During this hour all other University Exercises are suspended; and the entire Faculty and student body are expected to attend this exercise. It consists of a brief devotional service followed by an address by the President, some member of the Faculty, or an invited guest. Among the latter, during the autumn of 1902, were Hon. John A. Brigham, assistant secretary of agriculture, Mr. Booker T. Washington, and Captain Richmond P. Hobson, U. S. N.

Other lectures by invited guests are given before single departments or classes, or before the students of the respective Colleges of the University. Besides these special lectures there has recently been established a University Lecture Course. This course for the year 1902-3 was as follows:

1. "Some Current Educational Problems," by President Jacob

Gould Schurman, of Cornell University.

2. "Is the College an Efficient Institution?", by President Henry S. Pritchett, of the Massachusetts Institute of Technology.

3. "Self-Government, and What it Implies," by President Arthur T. Hadley, of Yale University.

4. "The Philosophy of Shakespeare," by Professor Sidney Lee, of London, England.

5. "The American System of Higher Education," by President Edmund J. James, of Northwestern University.

Cadet Service

Under the law of Congress establishing the University, it is required that instruction shall be given in military science and tactics. In accordance with this provision an officer of the regular army has been detailed to take charge of the Department of Military Science and Tactics; and the Trustees have directed that all male students, except those in the Law College, and such others as may be specially excused for physical disability or for having reached the age limit of twenty-five years, shall render two years of cadet service as a condition of graduation. A uniform has been prescribed with which each member is required to provide himself; and fifty minutes a day are devoted to drill, except on those days when instruction in tactics and art of war is given.

From the opening of the year until the Thanksgiving recess cadet service is required four times a week; from Thanksgiving until the Spring recess cadet service is required twice each week and gymnasium practice twice; from the Spring recess until the first of June cadet service is required four times each week.

Physical Education

The Gymnasium is a large modern building, completed in 1898. The basement is used for lockers, dressing rooms and baths. The east end is used by the young women, the west end by the young men. Each end has separate shower and plunge baths.

The exercising floor, 80 x 150 feet, is thoroughly equipped with the best apparatus in duplicate. The running track is fourteen laps to the mile, with graded elevations at the curve to meet the requirements of the different rates of speed. The track is laid with felt an inch in thickness, three and a half feet wide and covered with rubber coated canvas.

The Gymnasium is free to all students; those desiring a locker will be charged a fee of one dollar a term.

The work is compulsory for the first and second year students. The course consists of theoretical and practical work in the gymnasium, and includes calisthenics, light and heavy gymnastics, physiology of exercise, physical examinations and measurements. It is intended to give the students such a training in the methods of Physical Education that he may have a comprehensive knowledge of the subject.

A thorough physical examination of each student is made at the

opening of the year, and the measurements are outlined on charts, so as to show the parts below the normal development, for which special exercises suited to the health and physical condition of each individual will be suggested. These charts are constructed from the accumulated data of several thousand measurements of college students. Experience demonstrates that the body, as well as the mind, is susceptible of right and wrong development. Every part of the body can be strengthened and increased; and the relation of one part to another can also be changed so as to correct imperfections. It is the aim of the department to secure health, vigor and such harmonious development of the body as will fit it to resist disease and prepare it for efficient service, both now and later in life.

Class leaders who act as floor aids are selected from among those that show a proficiency in the work. These students are given a certificate of their appointment as Aids, and the letter A in scarlet, which they are entitled to wear on their gymnasium suits.

An important factor in the physical development of the students is the University Athletic Association. Its Athletic Board is composed of the Secretary of the Board of Trustees, three members from the Faculty, three from the Alumni, and four from the student body. This board has complete charge of all intercollegiate athletic events.

Student Organizations

The University branch of the International Young Men's Christian Association has a large membership. The management has rented a house at 1610 Highland Street as headquarters for the Association and employs the full time of a general secretary. Prospective students are invited to write for a handbook of information concerning the University, or for information concerning rooms, boarding, or employment, to J. H. Warner, General Secretary, Y. M. C. A., 1610 Highland Street, Columbus.

There is also a University branch of the Young Women's Christian Association, affiliated with the State organization. Headquarters have been established at 163 West Eleventh Avenue, which is also the address of the General Secretary, Miss Mina Ford. The local branch has also established a series of monthly twilight concerts, which are conducted in the University chapel, to which the best musical talent of the city has generously contributed its services.

There are seven literary societies in the University. The following are open to men in the College of Arts, Philosophy and Science: Alcyone Literary Society, founded in 1874; Horton Literary Society, founded in 1875; Athenæan Literary Society, founded in 1897. Two others, Browning Literary Society, founded in 1883, and Philomathean Literary Society, founded in 1894, are open to women. These societies have commodious and well furnished apartments in University Hall. They offer training in composition, public speaking, and parliamentary order.

There are numerous other organizations, membership in nearly all of which is open to any student. Their various objects are sufficiently indicated by the following titles: the Political Science Club, the English

Club, the Philosophy Club, the Biological Club, the Wheaton Club (Ornithology), the Chemical Club, the Engineering Society, the Ceramics Club, the Strollers (dramatic), the Glee Club, the Mandolin and Guitar Club, the University Quartette, the Cadet Band, and the Fencing Club.

The athletic teams that represent the University in football, baseball, basketball, tennis and track athletics, are under the control of the Athletic Board, as explained under "Physical Education."

Publications

"The Lantern," a weekly newspaper, is published by the students, as is also "The Makio," an illustrated annual. "The Ohio Naturalist," official organ of the Biological Club, and "The Journal of Mycology," published by the Department of Botany, are open to the publication of student research.

University Catalogue

Each of the six Colleges of the University publishes in the Spring of each year a College Bulletin or Catalogue, which may be had on application. There is also published a Bulletin of the Graduate School of the College of Arts, Philosophy and Science. These seven Bulletins taken together represent the entire work of the University. This Bulletin is confined to the work of the College of Arts, Philosophy and Science.

The general annual Catalogue of the University, showing the entire work of the University, will appear in August, 1903. All persons desiring more detailed information in regard to this College than they find in the following pages are referred to the University Catalogue, copies of which may be obtained on application to the Executive office, University Hall.

The University and High Schools

The University has appointed a High School Visitor and invites the cooperation of Boards of Education, superintendents, principals and teachers in so adjusting the work of students that those desiring to enter the University may do so with the least possible loss of time and preparation. The requirements for admission to this college and the value in units assigned to the several subjects are set forth in this bulletin. (See page 17.) Approved Secondary Schools will hereafter be classified as follows:

1. ACCREDITED SCHOOLS.

Those four year secondary schools whose courses of study offer such branches as prepare students for all colleges of the University.

All graduates holding certificates from this class of schools will be admitted to any college of the University without examination.

2. RECOGNIZED SCHOOLS

Those three year or four year secondary schools whose courses of

study do not prepare students for all colleges of the University, but include not less than sixteen units of secondary instruction.

Any graduate holding a certificate from one of these schools will be admitted without examination to any college of this University, for which he is prepared.

A certificate from a recognized school when presented by a graduate thereof will be accepted toward admission by any college of the University: but an applicant holding such a certificate will be subject to examination in the requirements for admission not covered by the certificate.

No school will be placed in either class until visited and reported to the High School Committee whose duty it is to determine whether the conditions and quality of the work in the school will warrant placing it in either of the above classes.

No applicant under twenty-one years of age will be admitted by certificate to the College of Arts, Philosophy and Science who is not a graduate of the High School from which he bears a certificate. Applicants over twenty-one years of age desiring special courses should consult page 24 of this Bulletin.

College of Arts, Philosophy and Science

Faculty and Instructors

REV. WILLIAM OXLEY THOMPSON, D. D.....	University Grounds
President of the University.	
JOSEPH VILLIERS DENNEY, B. A.....	230 Tenth Avenue
Dean, and Professor of Rhetoric and English Language.	
WILLIAM HENRY SCOTT, LL. D.....	131 Fifteenth Avenue
Professor of Philosophy.	
SIDNEY AUGUSTUS NORTON, LL. D.....	363 East Town Street
Emeritus Professor of Chemistry.	
SAMUEL CARROLL DERBY, M. A.....	93 Fifteenth Avenue
Professor of the Latin Language and Literature.	
JOSIAH RENICK SMITH, M. A.....	950 Madison Avenue
Professor of the Greek Language and Literature.	
BENJAMIN FRANKLIN THOMAS, Ph. D.....	University Grounds
Professor of Physics, and State Sealer of Weights and Measures.	
GEORGE WELLS KNIGHT, Ph. D.....	85 Jefferson Avenue
Professor of American History and Political Science.	
ROSSER DANIEL BOHANNAN, B. Sc., C. E., E. M.....	16th and Indianola Avenues
Professor of Mathematics.	
*ERNST AUGUST EGGERS.....	190 Eleventh Avenue, University Grounds
Professor of Germanic Languages and Literatures.	
ALBERT MARTIN BLEILE, M. D.....	218 King Avenue
Professor of Anatomy and Physiology.	
WILLIAM ASHBROOK KELLERMAN, Ph. D.....	175 Eleventh Avenue
Professor of Botany.	
BENJAMIN LESTER BOWEN, Ph. D.....	775 East Broad Street
Professor of Romance Languages and Literatures.	
ALLEN CAMPBELL BARROWS, D. D.....	85 Tenth Avenue
Professor of English Literature.	
WILLIAM McPHERSON, Ph. D.....	University Grounds
Professor of Chemistry.	
HERBERT OSBORN, M. Sc.....	485 King Avenue
Professor of Zoology and Entomology.	
HENRY CURWEN LORD, B. Sc.....	University Grounds
Professor of Astronomy, and Director of the Emerson McMillin Observatory.	
CHRISTOPHER P. LINHART, M. D.....	The Vendome
Professor of Physical Education, and Director of the Gymnasium.	
GEORGE L. CONVERSE, Captain (retired), U. S. A.....	94 Hoffman Avenue
Professor of Military Science and Tactics.	
FREDERICK CONVERSE CLARK, Ph. D.....	1634 Neil Avenue
Professor of Economics and Sociology.	
CHARLES SMITH PROSSER, M. Sc.....	114 West Tenth Avenue
Professor of Geology.	
JOHN ADAMS BOWNOCKER, D. Sc.....	1594 Neil Avenue
Professor of Inorganic Geology, and Curator of the Museum.	

* Died April 8, 1903.

ALFRED DODGE COLE, A. M.....	1602 Neil Avenue
Professor of Physics, and Secretary of the Faculty.	
WILBUR HENRY SIEBERT, M. A.....	1332 Highland Street
Professor of European History.	
OLIVE B. JONES.....	53 Eleventh Avenue
University Librarian.	
GEORGE WASHINGTON MCCOARD, M. A.....	232 Wilbur Avenue
Associate Professor of Mathematics.	
CHARLES WALTER MESLOH, M. A.....	University Grounds
Associate Professor of Germanic Languages and Literatures.	
ARTHUR WINFRED HODGMAN, Ph. D.....	164 West Ninth Avenue
Associate Professor of the Classic Languages.	
CLARA MAUD BERRYMAN.....	175 Eleventh Avenue
Director and Associate Professor of Physical Education for Women.	
JAMES ELLSWORTH BOYD, M. Sc.....	60 Maynard Avenue
Associate Professor of Mathematics.	
JOSEPH RUSSELL TAYLOR, M. A.....	222 King Avenue
Associate Professor of English Literature.	
CHARLES A. BRUCE, B. A.....	235 Tenth Avenue
Associate Professor of Romance Languages.	
WILLIAM EDWARDS HENDERSON, Ph. D.....	234 Tenth Avenue
Associate Professor of Chemistry.	
DAVID R. MAJOR, Ph. D.....	292 King Avenue
Associate Professor of Education.	
CHARLES WILLIAM FOULK, B. A.....	1656 Neil Avenue
Associate Professor of Chemistry.	
JOHN H. SCHAFFNER, M. Sc.....	40 West Tenth Avenue
Associate Professor of Botany.	
CHARLES BRADFIELD MORREY.....	137 West Ninth Avenue
Associate Professor of Bacteriology.	
JAMES STEWART HINE, B. Sc.....	1340 Hunter Street
Associate Professor of Entomology.	
FRANCIS LEROY LANDACRE, B. A.....	299 West Sixth Avenue
Associate Professor of Zoology.	
WALLACE STEDMAN ELDEN, Ph. D.....	1462 Neil Avenue
Associate Professor of the Classic Languages.	
WILLIAM LUCIUS GRAVES, M. A.....	1313 Forsythe Avenue
Assistant Professor of Rhetoric.	
CHARLES LINCOLN ARNOLD, M. Sc.....	328 West Eighth Avenue
Assistant Professor of Mathematics.	
*KARL DALE SWARTZEL, M. Sc.....	57 East Eighth Avenue
Assistant Professor of Mathematics.	
GEORGE H. McKNIGHT, Ph. D.....	303 West Seventh Avenue
Assistant Professor of Rhetoric and English Language.	
THOMAS HERBERT DICKINSON, B. Ph.....	244 West Tenth Avenue
Assistant Professor of Public Speaking.	
JAMES EDWIN HAGERTY, Ph. D.....	212 West Tenth Avenue
Assistant Professor of Economics and Sociology.	
THEODORE CLARKE SMITH, Ph. D.....	244 West Tenth Avenue
Assistant Professor of American History and Political Science.	
JOHN DAVIS BATCHELDER, A B., LL. B.....	The Vendome
Assistant Professor of Romance Languages.	
FREDERICK EDWARD KESTER, M. A.....	1473 Neil Avenue
Assistant Professor of Physics.	

* Absent on leave.

THOMAS HARVEY HAINES, Ph. D.....	310 West Seventh Avenue
Assistant Professor of Philosophy.	
HARRY WALDO KUHN, Ph. D.....	215 West Tenth Avenue
Assistant Professor of Mathematics.	
EDWIN F. CODDINGTON, Ph. D.....	39 West Eleventh Avenue
Assistant Professor of Mathematics.	
*ALONZO HUBERT TUTTLE, B. A.....	215 West Tenth Avenue
Assistant Professor of American History.	
ARTHUR ERNEST DAVIES, M. A., Ph. D.....	420 Fifteenth Avenue
Instructor in Philosophy.	
BERTHOLD A. EISENLOHR, B. Ph.....	377 King Avenue
Instructor in Germanic Languages.	
DON CARLOS HUDDLESON, G. Ph.....	891 Dennison Avenue
Instructor in Physical Education.	
MELVIN DRESBACH, M. Sc.....	236 West Eighth Avenue
Instructor in Anatomy and Physiology.	
SAMUEL EUGENE RASOR, B. Sc., M. A.....	1594 Neil Avenue
Instructor in Mathematics.	
GEORGE WASHINGTON RIGHTMIRE, B. Ph., M. A....	1528 Worthington Street
Instructor in American History and Political Science.	
EDGAR HOLMES McNEAL, Ph. D.....	1340 Highland Street
Instructor in European History.	
SARAH T. BARROWS.....	85 Tenth Avenue
Assistant in German.	
MARION WILSON MUMMA, B. Sc.....	47 West Tenth Avenue
Assistant in Chemistry.	
LOUIS BRYANT TUCKERMAN, JR., A. B.....	1451 Worthington Street
Assistant in Physics.	
EDWARD NATHAN WEBB, B. Sc.....	144 West Ninth Avenue
Assistant in Chemistry.	
RAYMOND JESSE SEYMOUR, B. Sc.....	76 West Third Avenue
Assistant in Anatomy and Physiology.	
HERMINE DE NAGY.....	1332 Highland Street
Assistant in Romance Languages.	
BENJAMIN FRANKLIN MAAG, M. Sc.....	
Assistant in Astronomy.	

Holders of Fellowships for 1902=3

JAMES GLOSSBRENNER SANDERS, B. A. (Otterbein).....	1610 Highland Street
Fellow in Botany.	
HARRIET GRISWOLD BURR, B. A.....	1454 Highland Street
Fellow in Botany.	
CATHERINE EMILY ANDREWS, B. A.....	1095 North High Street
Fellow in Chemistry.	
†CHARLES ETHELBERT STARLIN, B. Sc.....	
Fellow in Chemistry.	
CHARLES C. HUNTINGTON, B. Ph.....	138 West Ninth Avenue
Emerson-McMillin-Fellow in Economics.	
FRANK H. MIESSE.....	201 West Eleventh Avenue
Fellow in Economics.	
WINFRED FORREST COOVER, B. A.....	1456 Hunter Street
Fellow in Chemistry.	

* Absent on leave.

† Resigned.

OTTO H. SWEEZY.....	377 King Avenue
Fellow in Zoology and Entomology.	
GILBERT PENNOCK, B. A. (Antioch).....	80 Woodruff Avenue
Fellow in Rhetoric.	
CLARA CONVERSE EWALT, B. Ph.....	1382 East Long Street
Fellow in Rhetoric.	
FREDERICK JOHN MUIRIE, B. A.....	1574 Worthington Street
Fellow in Rhetoric.	

Officers and Committees of the Faculty

Dean: Professor Denney.

Secretary: Professor Cole.

Executive Committee: The Dean (*ex officio*), The Secretary (*ex officio*), Professors Eggers, Lord, Bleile and Clark.

Committee on Admission to Advanced Standing: Professor Thomas (Chairman), Professors Smith and Bowen.

Administrative Board of the Graduate School: Professor Knight (Chairman), Professors Barrows, McPherson, Osborn, and the Dean (*ex officio*).

Requirements for Admission

Entrance examinations will be held on Monday and Tuesday, June 22 and 23, 1903, and on Monday and Tuesday, September 21 and 22, 1903.

Each applicant for admission must be provided with credentials from his last instructor or from the last institution with which he has been connected, showing that he was in good standing.

Applicants will be admitted on passing a satisfactory examination in the studies prescribed for admission or upon the presentation of diplomas and certificates from such secondary schools as the General Faculty has approved. The list of high schools whose work is accredited or recognized will be furnished on application to the President.

Diplomas and certificates from such schools will be accepted in lieu of examination for preparatory studies only under the following conditions:

(a) The certificates must state in detail the studies pursued, the text-books used, the amount of work done in each study, the amount of time devoted to it, and the fact that the applicant has successfully passed in the work.

(b) The certificate will be accepted for such studies only, or such part of each, as it shall show to have been satisfactorily accomplished.

(c). Every such certificate must be accompanied with a diploma showing that the candidate has completed the course of study in the school from which he comes. *Blank certificates may be obtained by addressing the EXECUTIVE OFFICE, OHIO STATE UNIVERSITY, COLUMBUS.* Certificates should be filled out and returned to the University as early as possible after the close of the schools in June, and in any event not later than September 1.

The requirements are first stated in brief by groups, after which the requirement in each study is given in full.

Twenty-two units, as described below, are required for *unconditional* admission. No one under twenty-one years of age* will be admitted on less than nineteen units. Of the total deficiency of three units, thus permitted, no more than one unit may lie in any one of the first four groups (A, B, C, D), and not more than two units may lie in group E. For *unconditional* admission the candidate must be prepared to offer:

- A. Three units chosen from the following:
 - (1) English Composition and Rhetoric..... 2 units
 - (2) English Classics 1 unit
 - (3) English Literature 1 unit
- B. Three units chosen from the following:
 - (4) Civil Government 1 unit
 - (5) United States History 1 unit
 - (6) General History 1 unit
 - (7) Greek and Roman History 1 unit
 - (8) English History 1 unit
- C. Four units as follows:
 - (9) Algebra 2 units
 - (10) Plane and Solid Geometry 2 units
- D. Three units chosen from the following, including Physics:
 - (11) Physics 2 units
 - (12) Physical Geography 1 unit
 - (13) Botany 1 unit
 - (14) Chemistry 2 units
 - (15) Physiology 1 unit
 - (16) Zoology 1 unit
 - (17) Geology 1 unit
 - (18) Astronomy 1 unit
- E. Nine units chosen from the following; or three *extra* units, chosen from the preceding groups, and six units from the following:
 - (19) Latin 3 or 6 units
 - (20) Greek 3 or 6 units
 - (21) German 3 or 6 units ..
 - (22) French 3 or 6 units
 - (23) Spanish 3 or 6 units

The extent and character of the work required in each subject mentioned above is as follows:

(A) The English Group

Three units are required in this group. An applicant presenting *two* units in this group will be admitted *conditionally*, if his arrearage in all

* A person twenty-one years of age, or over, who desires to pursue a special line of work and does not desire to become a candidate for a degree, may be admitted by vote of the Executive Committee to such classes as he is qualified to enter; provided, that if he afterwards becomes a candidate for a degree he must pass the requirements for admission at least one year before the degree is conferred. See "Admission to Special Studies," page 24.

of the groups does not exceed three units. All arrearages must be made good within two years after admission.

(1) *English Composition and Rhetoric. Two units.* Each applicant must be able to write clear and correct English, and no applicant will be accepted in English whose work is seriously defective in spelling, punctuation, grammar, and paragraph structure. The proper preparation for this part of the requirement is practice in composition, at least once a week, through the four preparatory years, with correction of themes by the teacher and revision by the pupil. Subjects for themes should not be taken exclusively from literature; a large share of the subjects should be based upon the pupil's observation and experience. Practice should be afforded in writing narrative, description, exposition and argumentation. Applicants should be familiar with those principles of Rhetoric which are most helpful in elementary composition; viz., the principles of sentence structure, outlining, paragraphing, and choice of words. The amount and kind of work required is indicated in Scott and Denney's *Composition-Rhetoric*.

(2) *English Classics. One Unit.* The following books, or *equivalents*, should be read with sufficient care to insure a knowledge of their story-plot, or argument, their chief incidents, and their principal characters; so that pupils may discuss them intelligently. Four or five of these books should be examined closely in class (at least once a week through three years), with reference to structure and leading characteristics of style. The list (until 1905) is as follows: Shakespeare's *Merchant of Venice*, *Julius Caesar*, and *Macbeth*; Milton's *Lycidas*, *Comus*, *L'Allegro*, and *Il Penseroso*; Burke's *Conciliation with the Colonies*; Macaulay's *Essays on Milton and Addison*; The Sir Roger de Coverly Papers in *The Spectator*; Goldsmith's *The Vicar of Wakefield*; Coleridge's *The Ancient Mariner*; Scott's *Ivanhoe*; Carlyle's *Essay on Burns*; Tennyson's *The Princess*; Lowell's *The Vision of Sir Launfal*; George Eliot's *Silas Marner*.

(3) *English Literature. One Unit.* A good knowledge of the leading facts in the history of English Literature, as given in Scudder's *English Literature*, Johnson's *History of English and American Literature* or the Introductions by Pancoast, Painter, Halleck, or Newcomer; together with the reading of representative works of literature. One year at least, three periods, a week should be devoted to this study. This may be offered in lieu of subject (2), or as one of the *extra* units of group (E).

(B) The History Group

Three units are required in this group. An applicant presenting *two* units in this group will be admitted *conditionally*, if his arrearage in all of the groups does not exceed three units. All arrearages must be made good within two years after admission. Preparation in excess of three units in this group may be offered in lieu of the *extra* units of group (E).

(4) *Civil Government. One unit.* A good knowledge of the origin, principles, forms and powers of the national, state and local governments

is expected. Fiske's Civil Government, with a special study of the state from which the student comes, may serve to indicate the amount and kind of knowledge sought. One-half year of High School work, five periods a week, or one year, three periods a week, should be given to the subject. No credit upon certificate will be given for Civil Government where it has been studied merely as incidental to, and as a part of, the work in United States history.

(5) *United States History. One unit.* A good knowledge of the main facts and features of American history, especially of the period since 1750, is expected. Johnson's High School History of the United States, or McLaughlin's History of the American Nation, or Montgomery's Students' American History will serve to show the kind and amount of work sought. No credit upon certificate will be accorded in this subject for work done below the ninth grade. Three periods a week for one year, or five periods for one-half year should be devoted to this study.

(6) *General History. One unit.* Adams's European History, Myers' General History, or an equivalent. Three periods a week through one year, or five periods a week for one-half year, should be devoted to this study.

(7) *Greek and Roman History. One unit.* Botsford's History of Greece and History of Rome, or equivalents. Three periods a week through one year, or five periods a week for one-half year, should be devoted to this study.

(8) *English History. One unit.* Montgomery's Leading Facts of English History, or equivalent. Three periods a week through one year, or five periods a week for one-half year, should be devoted to this study.

(C) The Mathematics Group

Four units are required in this group. An applicant presenting *three* units in this group will be admitted *conditionally*, if his arrearage in all of the groups does not exceed three units. All arrearages must be made good within two years after admission.

(9) *Algebra. Two units.* Taylor's Elements of Algebra or an equivalent.

First unit. Special attention should be given to the four fundamental operations (single and system), factoring, highest common factor, lowest common multiple, fractions and fractional equations, involution, evolution, surds, complex quantities, quadratic equations, solved by factoring, by completing the square and the *general formula*.

Second Unit. A thorough review of the work of the first unit, irrational equations, simultaneous quadratic equations, higher equations solvable by factoring, ratio, proportion, progressions, theory of exponents, binomial theorem for positive integral exponents and use of five-place tables of logarithms. It is recommended that the second unit be taken in the last year of the high school course.

(10) *Geometry. Two units.* Venable, White, Wells, Wentworth, Beman and Smith through one and one-half years, or an equivalent.

First unit: Plane geometry with solution of originals. *Second unit:* Solid and spherical geometry with solution of originals given in the text-books named above. Instead of the *second unit*, the applicant may substitute *Plane Trigonometry*, as given in Lyman & Goddard's *Plane Trigonometry*.

(D) The Science Group

Three units are required in this group, including physics. An applicant presenting *two* units in this group will be admitted conditionally, if his arrearage in all of the groups does not exceed three units. All arrearages must be made good within two years after admission. Preparation in excess of three units in this group may be offered in lieu of the *extra* units of group (E.)

(11) *Physics. Two units.* Gage's *Elements*, Carhart and Chute, Avery, Appleton. One full year of daily work is necessary to meet the requirement in this subject. Laboratory training, to accompany the work of the text-book, is strongly recommended, but is not required for the present. A credit of *one* unit in *Physics* may be permitted for work less thorough than that indicated above.

(12) *Physical Geography. One unit.* Tarr's, Davis' or Gilbert and Brigham's *Physical Geography* will be accepted as meeting the requirement. One year, three periods a week, or one-half year, five periods, should be devoted to this study.

(13) *Botany. One unit.* Kellerman's *Elementary Botany* and *Spring Flora*, or an equivalent. The course should include three periods a week for a year or five periods for a half year, divided between spring and fall.

(14) *Chemistry. Two units.* Remsen's introduction to the Study of Chemistry, or its equivalent. For laboratory work, McPherson's *Laboratory Exercises*, arranged to accompany Remsen's *Chemistry*. The course should extend through at least one year, and should consist of at least three recitations and four hour's laboratory work weekly. No credit in chemistry will be allowed for preparatory work less thorough than that outlined above.

(15) *Physiology. One unit.* Martin's *Human Body* (brief course). Three periods a week through one year, or five periods a week for one-half year of high school work, should be devoted to this subject. No credit will be accorded in this subject for work done below the ninth grade.

(16) *Zoology. One unit.* Jordan and Kellogg's "Animal Life"; Kellogg's "Elementary Zoology"; Davenport's "Introduction"; or equivalents, with laboratory work or field work. Three periods a week through one year, or five periods a week for one-half year, should be devoted to this subject.

(17) *Geology. One unit.* Brigham's, Dana and Rice's (revised), or Tarr's may be used as texts. The recitations should be supplemented by study of the geological phenomena and formations found in the vicinity

of the school. The course should include three periods a week for one year, or five periods for one-half year.

(18) *Astronomy. One unit.* Young's Lessons in Astronomy, Comstock's Textbook in Astronomy or an equivalent.

(E) The Foreign Language Group

Nine units are required in this group; or three *extra* units from the preceding groups, and *six* units from this. A deficiency of *two* units is allowed in this group if the total arrearage in all of the groups does not exceed *three* units. All arrearages must be made good within two years after admission.

(19) *Latin. Three to six units* may be offered as follows: *Three units*—Pronunciation (Roman method); Grammar (an exact knowledge of the inflections); Cæsar, the first four books of the *De Bello Gallico*. *Fourth unit*—Cicero, six orations of Cicero, including *Pro Lege Manilia*. *Fifth and sixth units*—Virgil, the first six books of the *Aeneid* with Prose Composition, Daniell, or Collar, or Jones, or Dodge and Tuttle, entire (one-half unit). Latin cannot be continued as a university study unless at least five units are offered for admission. Four full years should be given to the preparation in Latin.

(20) *Greek. Three to six units* may be offered as follows: *Three units*—Grammar (Goodwin's preferred) and Prose Composition; or the first 100 lessons in White's Beginner's Greek Book. Reading: The first three books of Xenophon's *Anabasis*. At least two years should be devoted to this work. A *fourth* unit will be allowed for preparation in the fourth, fifth and sixth books of the *Anabasis* and three books of Homer's *Iliad*, and a *fifth* and *sixth* unit for additional reading in Greek.

(21) *German. Three or six units* may be offered as follows: *Three units*—The pupil should be able to read at sight, and to translate, if called upon, by way of proving his ability to read, a passage of very easy dialogue or narrative prose, help being given upon unusual words and constructions; to put into German short English sentences taken from the language of every-day life or based upon the text given for translation, and to answer questions upon the rudiments of grammar as defined below. During the first year the work should comprise: (1) Careful drill upon pronunciation; (2) the memorizing and frequent repetition of easy colloquial sentences; (3) drill upon the rudiments of grammar, that is, upon the inflection of the articles, of such nouns as belong to the language of every-day life, of adjectives, pronouns, weak verbs, and the more usual strong verbs, also upon the use of the more common prepositions, the simpler uses of the model auxiliaries, and the elementary rules of syntax and word-order; (4) abundant easy exercises designed not only to fix in mind the forms and principles of grammar, but also to cultivate readiness in the reproduction of natural forms of expression; (5) the reading of from 75 to 100 pages of graduated texts from a reader, with constant practice in translating into German easy variations upon sentences selected from the reading lesson (the teacher giving the English),

and in the reproduction from memory of sentences previously read. During the second year the work should comprise: (1) The reading of from 150 to 200 pages of literature in the form of easy stories and plays; (2) accompanying practice, as before, in the translation into German of easy variations upon the matter read, and also in the off-hand reproduction, sometimes orally and sometimes in writing, of the substance of short and easy selected passages; (3) continued drill upon the rudiments of the grammar, directed to the ends of enabling the pupil, first, to use his knowledge with facility in the formation of sentences, and, secondly, to state his knowledge correctly in the technical language of grammar.

Six units. The applicant must offer, in addition to the above, two additional years of instruction in German, including a review of the essentials of grammar. The rapid reading of at least 200 pages of prose; for example, the following: Heyse's *L'Arrabiata*, Riehl's *Der Fluch der Schönheit*, Hauff's *Lichtenstein*. The outlines of German literature should be mastered. In connection with this about 200 pages of German ballads and lyrics should be read. Some book like v. Klenze's *Deutsche Gedichte* might be used. A considerable portion of the prose and poetry should be read extemporaneously. About 50 pages in some prose composition should be translated. Text-books suggested are: v. Jagemann's, Poll's or Harris' *Prose Composition*. The work in composition should be carried on as far as possible in German. All exercises should be had in this entire course, as far as they may be used without interfering with the thoroughness of the work.

(22) *French.* *Three or six units* may be offered as follows: *Three units* — Applicants should be able to pronounce French accurately, to read at sight easy French prose, to put into French simple English sentences, taken from the language of every-day life, or based upon a portion of the French text read, and to answer questions on the rudiments of the grammar as defined below. Two years should be given to this preparation. During the first year the work should comprise: (1) Careful drill in pronunciation; (2) the rudiments of grammar, including the inflection of the regular and the more common irregular verbs, the plural of nouns, the inflection of adjectives, participles and pronouns; the use of personal pronouns, common adverbs, prepositions and conjunctions; the order of words in the sentence, and the elementary rules of syntax; (3) abundant easy exercises, designed not only to fix in the memory the forms and principles of grammar, but also to cultivate readiness in the reproduction of natural forms of expression; (4) the reading of from 100 to 175 duodecimo pages of graduated texts, with constant practice in translating into French easy variations of the sentences read (the teacher giving the English), and in reproducing from memory sentences previously read; (5) writing French from dictation. During the second year the work should comprise: (1) The reading of from 250 to 400 pages of easy modern (nineteenth century) prose in the form of stories, plays or historical or biographical sketches; (2) constant practice, as in the previous year, in translating into French easy variations upon the texts read; (3) frequent abstracts, sometimes oral and sometimes written, of por-

tions of the text already read; (4) writing French from dictation; (5) continued drill upon the rudiments of grammar, with constant application in the construction of sentences; (6) mastery of the forms and use of pronouns, pronominal adjectives, of all but the rare irregular verb forms, and of the simpler uses of the conditional and subjunctive.

Six units. The applicant should be able to read at sight, with the help of a vocabulary of special or technical expressions, difficult French not earlier than that of the seventeenth century; to write in French a short essay on some simple subject connected with the works read; to put into French a passage of easy English prose and to carry on a simple conversation in French. Four years should be given to this preparation.

(23) *Spanish.* *Three or six units* may be offered as follows: *Three units.* Applicants should be able to pronounce Spanish accurately, to read at sight easy Spanish prose, to put into Spanish simple English sentences taken from the language of every-day life or based upon a portion of the Spanish text read, and to answer questions on the essentials of the grammar. Two years should be given to this preparation, the first year being spent mainly on the grammar with easy reading and oral practice; the second devoted to reading good modern Spanish, with grammatical analysis and exercises in writing. The texts read should be chiefly narrative and conversational prose, including one or more prose dramas of the present age.

Six units. The applicant should be able to read at sight, with the help of a vocabulary of special or technical expressions, difficult Spanish, whether prose or poetry; to write in Spanish a short essay on some simple subject connected with the works read, which shall show a thorough knowledge of syntax; to put into Spanish a passage of easy English prose, and to carry on a simple conversation in Spanish. Four years should be given to this preparation.

Admission to Special Studies

Students who desire to pursue special lines of work and do not desire to become candidates for degrees, will be admitted on the following conditions:

1. The regular entrance requirements must be satisfied.
2. But applicants who are not less than twenty-one years of age after obtaining credit for the common English branches and for such other subjects as may be necessary to qualify them for the classes that they wish to enter, may, on the presentation of satisfactory reasons, be admitted to any class in the College; provided, that if any student who has been admitted on these conditions afterwards becomes a candidate for a degree, he shall pass the omitted entrance examinations at least twelve months before the degree is conferred.
3. On entering the College, students desiring to pursue special work are required to lay before the Executive Committee, for approval or modification, a written statement of the end they have in view, the studies proposed for the attainment of that end, and the probable period of attend-

ance. Such students will be held as strictly to their accepted schemes of work as are the regular undergraduates to their courses of study.

4. Permission to enter as special undergraduates will be refused to all who fail to give satisfactory evidence of definiteness of purpose, and will be withdrawn whenever the conditions on which it was granted cease to exist.

Admission to Advanced Standing

1. Applicants who do not come from some other university or college must first obtain admission to the College in the manner already described. They will then be examined on the undergraduate studies for which they ask credits.

2. Applicants who come from the collegiate department of an approved College, and who bring explicit and official certificates describing their course of study and scholarship, and also certificates of honorable dismissal, will be admitted without examination except such as may be necessary to determine what credit they are to receive here for work done in the college from which they come.

Requirements for Graduation

Undergraduate Courses of Study

The entire work of the College of Arts, Philosophy, and Science has been recently reorganized on the group and elective system. While under the new system the "courses"¹ formerly offered in this College, quite rigid and independent of one another, do not appear as such, it will be found that several of the new groups correspond to the former "courses," in their chief studies and leading aims, but with much greater flexibility and much freer opportunities for election in each group. The new system also provides for many other "courses" than have hitherto been possible, having equally specific aims. The groups, so far as at present arranged, number fourteen. This number will be increased as reasonable demand may arise for new groups. The characteristic features of each group may be judged from its name which is made up of the names of the chief studies of the group. The groups at present recommended are given at page 28.

¹ Arts or Classical, Latin-Philosophy, Modern Language Philosophy, English Philosophy, General Science, Commerce and Administration, Education, Preparatory to Law, Preparatory to Medicine, Preparatory to Journalism.

Under the new system about one-third of every student's "course" is prescribed. Each student is required to lay sufficiently broad foundations, during the first two years, in English, in two other languages to be chosen by himself, in mathematics and one science, or in two sciences to be chosen by himself, and in history, economics, English literature, or philosophy. The remaining two-thirds of each student's "course" is elective; but in order to insure substantial results in the studies thus freely chosen, the student is required to continue two of his first-year studies (any two) through the second year, one of his second-year studies (any one) through the third year, and one of his third-year studies (any one) through the fourth year. The freedom permitted in the groups is thus large enough to enable a student who had insufficient acquaintance with his own tastes and tendencies when he entered the College and who selected a curriculum that proved unsatisfactory in some respects, to rectify the error by shifting his choice of a study or studies to be continued from year to year. In order to guard against the danger of too narrow or too wide a range of work, a maximum and a minimum number of departments is fixed in which the student is allowed to work during any one year of his "Course." In the first and second years the number of departments thus fixed is four or five; in the third and fourth years the number is three or four.

The limitation of the number of departments to three or four in the third and fourth years renders unnecessary the former regulation respecting a major study. The thesis regulation as a specific "Course" requirement is likewise abandoned since most students will inevitably arrive in their fourth year at advanced seminary or laboratory courses, in the departments of their choice, which necessarily involve training in methods of research with statements of results. The degree conferred at the satisfactory completion of a "Course" in the College of Arts, Philosophy and Science will hereafter be the degree of Bachelor of Arts.

The list of departments with full announcements for 1902-3 of the studies which may be elected by properly qualified students of this College, may be found on page 36 (and following). Included in the large number of studies thus freely offered to students of this College are a few courses primarily intended for students of other colleges of the University, — courses in drawing, photography, art, mineralogy, metallurgy, land surveying, thermodynamics, electrical engineering, law, and domestic science. These courses may hereafter be chosen by students of this College as part of the work counting towards their degree.

All members of the Faculty, but the Dean and the members of the Executive Committee especially, are always glad to advise with the students respecting choice of studies.

Requirements

On satisfactory completion of 180 term hours under the restrictions prescribed below, the student will be recommended for the Degree of Bachelor of Arts.

The 180 term hours must include the following, amounting to 57 term hours:

- (a) Rhetoric 1. (2-2-2) 6 term hours.
- (b) Two of the following: (8-8-8) 24 term hours.
 - Greek 1 or 7, 8, 9; Latin 1, 2, 3;
 - French 1 or 2; German 1 or 4; Spanish 1 or 2.
- (c) Mathematics 31, 32, 33 and 24. (6-6-6) 18 term hours; or
Two of the following (6-6-6) 18 term hours.
 - Mathematics 21, 22, 23; Physics 11 or 2;
 - Chemistry 1; Botany 21, 22, 23; Zoology 1;
 - Geology 17; Physiology 1.
- (d) One of the following: (3-3-3) 9 term hours.
 - European History 1 or 14; American History 1;
 - Economics 1 or 2, 3, 4; Philosophy 18, and 19 or 20;
 - English Literature 1.

For the remaining 123 term hours required for graduation the student may elect from any courses announced in this College (see page 36, and following) for which he is qualified.

FIRST YEAR.

- (a) Fifteen or sixteen hours each term, chosen from the prescribed work indicated above, including Rhetoric 1.
- (b) Cadet service (men); Hygiene and Physical Training (women); required throughout the first year.

SECOND YEAR.

- (a) Fifteen hours each term. This must include all the prescribed work not done in the first year; the other work of the second year to be in three or four departments of which at least two shall be departments in which the student has worked during the first year.
- (b) Cadet service (men); Hygiene and Physical Training (women); required through the second year.

THIRD YEAR.

Fifteen hours each term in three or four departments, at least one to be a department in which the student has worked during the second year.

FOURTH YEAR.

Fifteen hours each term in three or four departments, at least one to be a department in which the student has worked during the third year.

EXTRA HOURS.

A student who has postponed a study in group (b) from the first to the second year, may take sixteen hours in the second year, and by the permission of the Executive Committee a student who has shown exceptional proficiency may be allowed to undertake from one to three extra hours. No extra hours will be granted to a first-year student, or to any student with conditions outstanding.

Rules Governing Elections

Each student enrolled in the College of Arts, Philosophy and Science must file at the Registrar's office not later than June 1st of each year a complete statement of the courses he wishes to enter the following year. Blanks for this purpose may be obtained of the Registrar.

First Year Options

In order to meet the requirements for graduation, the first-year student must arrange his work on one of the following plans:

I. Rhetoric; two languages; two sciences, or mathematics and one science, or mathematics alone; deferring until the second year the selection from group (d), above.

II. Rhetoric; two languages; mathematics or science; one subject from group (d); deferring until the second year a second subject from group (c), above.

III. Rhetoric; one language; two sciences, or mathematics and one science, or mathematics alone; one subject from group (d); deferring until the second year the second language from group (b), above.

In order to assist the student in his choice of work for the first two years, more specific directions are given below in connection with various natural groupings of studies. *These groups are not mandatory.* The student may make other combinations than those suggested, provided his selection of studies fulfills one of the three options given above. In the second year many other combinations are possible. The time schedule, however, is arranged primarily to fit the combinations recommended. The days and hours at which each study is taught may be found by looking up that study on page 36 (et seq.) of this Bulletin. The title of a group indicates the chief studies of that group. For the work of the first-year student, groups 1 to 6 recommend a complete curriculum. Groups 7 to 14 name only one or two first-year studies, it being understood that the remaining studies of the first year will be chosen as recommended in some one of the first six groups.

Study Groups

1. *Greek-Latin.* First year: Greek 1 or 7, 8, 9; Latin 1, 2, 3; Rhetoric 1; and either 6 hours in (c) or 3 hours in (c) and 3 hours in (d). Second year: Greek 7, 8, 9, or 10, 11, 12; Latin 4, 5, 6. This group corresponds to the former Classical or Arts Course. Before choosing the 3 hours in (d) read groups 7 to 12. Before choosing the work in (c) read groups 4 to 6.

2. *Latin-Modern Language.* First year: Latin 1, 2, 3; French 1 or 2, or German 1 or 4, or Spanish 1 or 2; Rhetoric 1; and either 6 hours in (c) or 3 hours in (c) and 3 hours in (d). Second year: Latin 4, 5, 6; French or German, or Spanish, continued. This group corresponds in general to the former Latin-Philosophy Course. Before choos-

ing the 3 hours in (d) read groups 7 to 12. Before choosing the work in (c) read groups 4 to 6.

3. *Modern Language*. Substitute two modern languages for Greek and Latin in group 1 above. *Not more than one new language should be begun in the first year.* The student who offers but one language for admission and who does not desire to continue that language in the University should follow the arrangement of language studies suggested in the next group. This group corresponds in general to the former Modern Language-Philosophy Course. Before choosing the work in (d) read groups 7 to 12. Before choosing the work in (c) read groups 4 to 6.

4. *General Science*. First year: German 1 or 4, or French 1 or 2; Chemistry 1; Mathematics 21, 22, 23; Rhetoric 1; 3 hours in (d). Second year: Continue Chemistry and one other study of the first year; add a second modern language and one of the following: Physics 2; Botany 21, 22, 23; Physiology 1; Zoology 1; Geology 17; Astronomy 1. This group corresponds in general to the former Course in Science. It also opens the way to a thorough professional course in Chemistry. Before choosing the work in (d) read groups 7 to 12.

5. *Mathematics-Physics-Astronomy*. First year: Mathematics 31, 32, 33, 24; French 1 or 2, or German 1 or 4; Rhetoric 1; 3 hours in (d). Second year: Mathematics 41, 42, 43; Physics 2, Chemistry 1; Rhetoric 10; and a second modern language. Third year: Astronomy 1 and 2. Instead of Mathematics 31, 32, 33, 24 in the first year, Chemistry 1 and Mathematics 21, 22, 23, may be chosen, to be followed by Mathematics 28 in the second year. This group emphasizes the sciences named in the title. Before choosing the work in (d) read groups 7 to 12.

6. *Biological Sciences*. First year: French 1 or 2, or German 1 or 4; Chemistry 1; Botany 21, 22, 23, or Zoology 1; Rhetoric 1; 3 hours in (d). Second year: Botany; Zoology; Physiology 1, or Physics 11, or Geology 17; and a second modern language. This group corresponds to the former Course Preparatory to Medicine. Before choosing the work in (d) read groups 7 to 12.

7. *English-Rhetoric*. First year: Include English Literature 1. Second year: Include European History 14; English Literature 2, 3, 4, or 5, 6, or 18 and either Rhetoric 15, 16, or Rhetoric 2, 3, with Philosophy 18, 19. This group corresponds to the former English Philosophy Course and Course Preparatory to Journalism.

8. *Economics-History*. First year: Include European History 1, or Economics 1 or 2, 3, 4. Second year: Include American History 1, and the subject named above not taken in the first year, continuing the other. This group corresponds to the former English Philosophy Course and Course Preparatory to Law and Journalism.

9. *History-Political Science-Administration*. First year: Include American History 1, or European History 1 or 14. Second year: Include Political Science 1 or Economics 1 and the subject named above not taken in the first year. European History 4 should be taken later. The student who has not a reading command of French or German

should begin French or German not later than the second year, continuing the study during two years. This group corresponds to the former Course in Administration. It opens the way to a thorough preparation for law or the public service.

10. *Commerce-Law*. First year: Include German 1 or 4, and Economics 1. Second year: Include Economics, and American History 1 or Elementary Law. This group corresponds to the former Course in Commerce and opens the way to a thorough preparation for a business career.

11. *Sociology-Philosophy*. First year: Include Economics 2, 3, 4. Second year: Include Sociology, Philosophy 15, 16, 17 and one of the following: American History 1, European History 1, Economics 1 or 5, 6, 7. This group emphasizes the studies regarded as essential in preparation for certain important forms of municipal and social service.

12. *Philosophy-Education*. First year: Include Philosophy 18, 19. Second year: Include Philosophy 20, 21 and Education 1, 2, or 3. This group corresponds to the former Course in Education, opening the way to a thorough study either of philosophy, or of educational problems.

13. *General Literature*. Continue both languages offered for admission, begin a third language in the second year and a fourth in the third year. Include English Literature 1 and European History 14 in the work of the first two years, and take Philosophy 15, 16, 17, or 18, 19, in second or third year.

14. *General Philology*. Greek if not offered for admission should be begun in the first year, and Latin continued. Second year: Include English Language 15, 16, and German 1 or 4. Note prerequisites for courses 14, 15, in French; 14 to 21 in Germanic Languages; 19, 20, 21 in Greek; 12 to 25 in Latin; 17 to 20 in English Language.

Notice to the Classes of 1904 and 1905

1. Members of the Class of 1904 are required to complete their respective Courses as given in the catalogue of June, 1901, up to the beginning of the third year, and in addition 90 term hours according to the new requirements, including at least 9 term hours in the department of Philosophy unless the student has already completed that amount in said department; the degree to be B. A.; or, on request of student filed before June 1, 1904, the degree of B. Ph. or B. Sc. for which the student has previously been enrolled; provided that no student will be recommended for the degree of B. Sc. unless he shall have completed at least 60 term hours in Sciences and Mathematics before Commencement day of June, 1904.

2. Members of the Class of 1905 are required to complete their respective Courses as given in the catalogue of June, 1901, up to the beginning of the second year, and in addition 135 term hours according to the new requirements, including at least 9 term hours in a study in group (d) unless the student has already completed that amount in a study in that group; the degree to be B. A.; or, on request of the student filed before

June 1, 1905, the degree of B. Ph. or B. Sc., for which the student has been previously enrolled; provided that no student will be recommended for the degree of B. Sc. unless he shall have completed at least 60 term hours in Sciences and Mathematics before the Commencement of June, 1905.

The Graduate School

College of Arts, Philosophy, and Science

Organization

In order better to meet the rapidly increasing demands made by graduates of Ohio Colleges upon the University for graduate instruction, the Faculty of the College of Arts, Philosophy and Science has recently reorganized the scheme of graduate work. The object of the present plan is to emphasize and utilize in greater degree the facilities which the University affords for advanced students and to secure a more effective and systematic arrangement and supervision of the higher work. Whereas the graduate courses and instruction are organically within the College of Arts, Philosophy and Science, the supervision and administration of all matters connected with the graduate work has been lodged in an Administrative Board, consisting of the Dean and four other members chosen from the Faculty. The Chairman of the Administrative Board is Professor George W. Knight, to whom all communications should be addressed.

Admission

Registration as a graduate student of this college is open to all graduates of the College of Arts, Philosophy and Science of this University, and to graduates of other colleges of this University, or of other universities or colleges who satisfy the Administrative Board that they are qualified to pursue with profit the work here offered in the lines of study which they wish to carry on.

Graduates of institutions of which the undergraduate courses of study are not substantially equivalent to the course prescribed in this college for the bachelor's degree will be required to do an additional amount of undergraduate work, or to prolong their term of residence, before being admitted to full candidacy for a higher degree.

Bachelors of this College or of other institutions who do not wish to become candidates for a higher degree may be admitted as special graduate students.

Application for admission as a graduate student should be addressed to the Chairman of the Administrative Board of the Graduate School. Full details should be forwarded of the candidate's previous course of

study, the degree desired, and the special preparation already had in the major and minor subjects to be pursued.

As the first question to be decided is whether the degree already taken by the applicant is substantially the equivalent of the degree given in this College, full information on this point is required. This should include a general statement of the character of the course pursued, with special reference to the amount of mathematics, science and the languages, including English. Blank forms of application may be obtained from the Registrar of the University.

The second question touches the qualifications of the applicant to enter upon advanced work in the special departments of study in which he desires to work. In order to determine this, a detailed statement is necessary of the previous course of study in the major and minor subjects which the applicant desires to pursue. Official evidence of the above statements must be submitted before the applicant is admitted to full registration.

No graduate student will be registered as a candidate for a higher degree later than October first of the academic year in which he seeks the degree.

Course of Instruction

For Candidates for Higher Degrees. Unlike the curriculum for undergraduates, the work of candidates for higher degrees is not confined to specific courses of instruction regularly offered in the College. Each student chooses a major study, and one or two minor studies, which must be approved by the Administrative Board before he enters upon his work. This may consist of attendance upon specified courses or of private research or reading and report thereon. The professors in charge of the studies chosen constitute a special committee, the professor in charge of the major study being the chairman, to arrange the details of the work comprising the major and minor studies, to supervise the work of the student, to examine and pass judgment on the thesis and to conduct the final examination.

Upon the completion of the prescribed course a final examination upon the entire work undertaken for the degree is held under the direction of the special committee, except that at the option of the committee the examination upon the minor or minors may be held whenever such minor or minors are completed.

A thesis upon some subject within the field of the major study is required of all candidates for the doctor's degree; and is also required of all candidates for the master's degree unless waived in individual cases by the Administrative Board on the recommendation of the special committee in charge of the candidate's work.

With the approval of the Administrative Board a candidate for a higher degree may elect specific courses, additional to the major and minor studies. For such election any course offered in the College of Arts, Philosophy and Science is open to candidates who satisfy the head of the department that they are qualified to pursue it with profit. The amount of

such additional elective, if any, which the student may take must in each case be determined by the Administrative Board, and it is to be understood that such work, if allowed, will not be credited towards the degree for which the candidate is working.

For Graduate Students not Candidates for a Degree. Graduate students who are not seeking a higher degree are not required to designate major and minor studies, but may select their work with a view to the special purpose for which they are in attendance at the University. Any course of instruction announced in the College of Arts, Philosophy and Science is open for election by graduate students not candidates for a degree who satisfy the head of the department that they are qualified to pursue it with profit. But the list of elections so chosen must in each case be approved by the Administrative Board before the student enters upon his work.

Should such student subsequently desire to become a candidate for a higher degree the Administrative Board will determine how much, if any, of the work previously done as a graduate student can be counted as a part of the major and minor studies requisite for the degree sought.

Requirements for Higher Degrees

The University confers two higher degrees, Master of Arts and Doctor of Philosophy, upon the completion of approved courses of resident graduate study.

The Master's Degree. The degree of Master of Arts is open to those holding the Bachelor's degree who have been admitted to full candidacy as indicated above (see Admission, second paragraph). A residence of at least one year at this University wholly devoted to the work for the degree is required. With the consent of the committee the work of the candidates for the Master's degree may be distributed over more than one year. *The Master's degree is not conferred for study in absentia.*

A holder of the Bachelor's degree will be recommended for the degree of Master of Arts upon the completion of the prescribed term of residence, and passing a final examination in the course of study laid out for him, covering a major and one or two minor subjects approved by the Administrative Board, and unless waived by the same committee, the submission and acceptance of a thesis, on some subject within the field of the major study. The major study must be in advanced work; the minor study or studies may, with the approval of the Administrative Board, be of a more elementary character.

The subject for the Master's thesis must be chosen and approved by December 1st, and the completed thesis must be submitted not later than June 1st. A typewritten copy of the accepted thesis must be deposited with the University before the candidate will be recommended for a degree.

The Doctor's Degree. The degree of Doctor of Philosophy is open to those holding the Bachelor's degree who have been admitted to full candidacy as indicated above (see Admission, second paragraph), and who

also fulfill the terms of this and the next paragraph. At least three years of resident graduate work is required, but on approval of the Administrative Board the first year or the first two years may be spent at another university which offers equivalent graduate work.

Save in the cases of persons who come properly accredited from a graduate school of some other university no student will be enrolled as a candidate for the degree of Doctor of Philosophy until he has been in residence as a graduate student at this University for one year. Formal application for enrollment as a candidate for the degree must be made at least one year before the candidate expects to present himself for final examination. No person will be admitted to candidacy for the degree who does not possess at the time of enrollment a reading knowledge of French and German.

Each candidate for the Doctor's degree must pursue a major study and two allied minor studies, one of which may be within the same department as the major. All of them must be advanced, specialized work. The degree is intended to represent not a specified amount of work, covering a specified time, but long study and high attainment in a special field.

Each candidate is required to prepare a thesis within the field of his major study, involving an extended research or investigation and constituting an original contribution to knowledge. The thesis for the Doctor's degree is one of the most essential factors of the candidate's work, since it measures his accuracy and power of independent investigation. The preparation of an acceptable thesis will usually require the greater part of an academic year.

After the acceptance of the thesis the candidate will be examined by his special committee upon the entire work undertaken for the degree, except that at the option of the committee the examination on the minors may be held whenever such minors are completed.

Each candidate is required to have his accepted thesis printed and to deposit with the University library fifty copies to be used for exchange purposes.

The subject of the thesis for the Doctor's degree must be chosen and approved by the special committee by November 1st of the college year in which the applicant expects to take the degree. The completed thesis must be submitted not later than May 1st. The final examination will be held not later than June 1st.

Announcement of Departments

American History and Political Science

(University Hall, Rooms 27, 18 and 48.)

PROFESSOR KNIGHT, ASSISTANT PROFESSORS SMITH AND TUTTLE.

I American History

The courses in American history are of four classes: (a) introductory (course 1), designed as a general foundation course in American political and social history; (b) advanced, (courses 2, 4, 6, 7) designed to cover distinct periods or phases of American historical development; (c) special, (courses 8, 9, 10, 12, 13) involving the deeper study of special subjects or movements, and designed to train and employ the student's faculty of investigation; and (d) a teachers' course, (course 11).

Course 1 must precede all other courses and should therefore be taken in either the first or the second year. After this is completed students may elect at their pleasure from the courses in the advanced group (courses 2, 4, 6, 7), but it is desirable that election should be made for an entire year and not for single terms. Students who intend to go far with their studies in American history should take English history (European history 14) early in their course. American history 8 and 9 may be taken in connection with any of the above advanced group but other courses of the special group are open only to fourth year and graduate students.

1. **Political History of the United States.** A general course covering the political and social history from the earliest colonial times to the present. Text-books, prescribed readings and topical reports. Thwaites's *The Colonies*; Hart's *Formation of the Union*; Wilson's *Division and Re-union*. Three times a week throughout the year. Section I: M. W., F., at 8; Section II: M., W., F., at 9; Section III: M., W., F., at 1. Assistant Professor Tuttle.
This must precede all other courses in American history.
2. **The Formation of the United States, 1600-1820.** An advanced course covering the political and institutional development of the colonies and the establishment of a federal union. First term, the colonies 1600-1774: second term, revolution and constitution-making, 1774-1789; third term, the development of democratic national and state governments, 1789-1820. Lectures, reading and reports. Three times a week throughout the year. M., W., F., at 2. It is desired that this course be preceded or accompanied by European History 14 or 4. Assistant Professor Smith.
4. **The Slavery Struggle and Its Results, 1800-1885.** An advanced course comprising a study of the development and downfall of slavery in the United States, and its relation to and influence

upon government, legislation and political organization. First term, development and status until the Compromises of 1850; second term, secession and civil war, 1850-1865; third term, reconstruction and its effects, 1865-1885. Lectures, readings and special reports. Three times a week throughout the year. Professor Knight.

Given biennially. Not offered in 1903-1904.

6. **American Diplomacy, Foreign Relations and Expansion.** An advanced course comprising an historical study of the foreign relations, problems, and policy of the United States, including the acquisitions of territory and their effects on our institutions and government. Lectures, readings and special reports. Three times a week throughout the year. M., W., F., at 11. Professor Knight.
7. **History of Political Parties, 1774-1900.** A detailed study of the origin, development and structure of political parties in the United States with particular attention to their social composition, geographical distribution, organization and political methods. First term, the Federalist and Republican parties, 1774-1820. Second term, Jacksonian Democracy, Whigs and Republicans, 1820-1860. Third term, the present parties. 1860-1900. Lectures, parallel reading, quizzes and reports. Three times a week throughout the year. Assistant Professor Smith.
Given biennially. Not offered in 1903-1904.
8. **Historical Material and Its Use** Lectures on elementary historical bibliography and the use of American historical documents, with practical exercises. Especially designed for students intending to do advanced work in American history and political institutions. Once a week, first and second terms. W., at 3. All students specializing in American history and political science should take this course, and the one following. Assistant Professor Tuttle.
9. **Topical Research in American History.** The preparation of special topics on the basis of the work of course 8. Once a week, third term. W., at 3. Assistant Professor Tuttle.
Open to those who have had course 8.
10. **Seminary for Research Work in American History and Political Science.** Two hours (at one meeting), three terms. M., 3 to 5. Professor Knight, Assistant Professor Smith.
Open on permission of the head of the department to those who have had two courses in American history (in addition to American history 8-9), and at least one course in political science.
11. **The Teaching of American History.** A course in methods of teaching American history, especially in the secondary schools, designed for advanced students preparing themselves as teachers and expecting to ask this department for recommendation as to their qualifications. Once a week, second and third terms. Tu., at 8. Professor Knight, Assistant Professors Smith and Tuttle.
12. **Graduate Seminary in American History and Institutions.** Some limited field will be made the subject of co-operative study each year by the seminary. So far as possible the investigation will

be in the sources. The subject for 1902-1903 was the Revolutionary Period, and that for 1903-1904 will probably be a continuation of the same, with special reference to the diplomatic history from 1776 to 1800. Two hours a week at one meeting, three terms. Hours to be arranged. Professor Knight.

Open only to graduate students.

13. **Graduate Courses.** Under this number courses are arranged at the beginning of the year to meet the needs of individual students desiring to pursue graduate work in American history. Professor Knight.

II Political Science

The work in political science should be begun with course 1, but some other courses may be taken in connection with it. The order in which the other courses should be taken will vary according to the student's historical training. In all cases the work is closely dependent upon historical knowledge, the amount and kind varying for different courses. So far as possible a suggestion on this point is given below in connection with each course.

1. **Modern Political Institutions.** Introductory course in political science, comprising a study of the political and administrative systems of leading countries with particular reference to their actual operation. First term, the United States government and the state governments. Second term, England, France, Italy and countries with government of the parliamentary form. Third term, German, Swiss and other federations. Lectures, quizzes, parallel reading and reports. Bryce, American Commonwealth, and A. L. Lowell, Government and Parties in Continental Europe, cover the ground of this course. Woodrow Wilson, The State, is an alternative. Three times a week throughout the year. M., W., F., at 9. Assistant Professor Smith.

Prerequisite: American History 1, or European History, 1 or 14.

4. **International Law.** A study of public international law. Text book and lectures. Lawrence's Principles of International Law. Twice a week, first and second terms. Tu. and Th., at 10. Professor Knight. Open to those who have had one course in European History and one course in American History.
5. **History of Treaties and Modern Diplomacy.** A study of the leading treaties of modern times, with special reference to their bearing on international law and the political relations of the leading nations. Lectures accompanied by collateral reading and special reports. Twice a week, third term. Tu., Th., at 10. Professor Knight.

Course 5 must be preceded by course 4, with which it forms a year's consecutive work.

6. **The Government of Dependencies.** A study of the government of dependencies by the home country, and of the political and legal relations between them. Lectures, assigned reading and special

reports. Twice a week, first term. Tu., Th., at 11. Professor Knight.

7. **Colonial Institutions.** A study of local institutions, civil service and administration, and the development of local self-government in the leading colonies of to-day. Lectures, assigned reading, and special reports. Twice a week, second term. Tu., Th., at 11. Professor Knight. Course 7 must be preceded by course 6.
8. **Municipal Government.** A study of the development, status and government of modern municipalities, and a comparative study of recent American municipal charters. Lectures, collateral reading and special reports. Twice a week. Third term. Tu., Th., at 11. Professor Knight.
9. **Origin and Development of the United States Constitution.** An historical study of the origin, in English, colonial, and state institutions, of the constitution, and its development by interpretation and exposition by the Supreme Court in selected leading cases. Lectures, assigned reading, discussions and special reports. Twice a week, three terms, Tu., Th. at 2. Assistant Professor Tuttle.
10. **Theories of Government, Sovereignty and Political Liberty.** An introductory survey of the origins of political theories, followed by an historical study of the political doctrines expressed in American constitutions and a critical examination of these doctrines in the light of recent European and American thought. Lectures, reports and discussions. Twice a week throughout the year. Tu., Th., at 9. Assistant Professor Smith.
Open to graduates and qualified undergraduates who have obtained the instructor's permission.
12. **Comparative Politics.** A study of parties and political methods in legislation, administration and elections in the United States, Great Britain and its colonies, France, Germany, and the leading European countries. Lectures, quizzes, parallel reading and reports. Twice a week throughout the year. M., F., at 10. Assistant Professor Smith.
Open only to those who have taken Political Science 1.
13. **Administrative Law.** The general principles of administrative law, with a special study of administration in America. Twice a week throughout the year. Tu., Th., at 10. Assistant Professor Tuttle.
14. **Roman Law.** Constitutional and Private Law. Twice a week throughout the year.
Not offered in 1903-1904.

Anatomy and Physiology

(Biological Hall, Rooms 12 and 20.)

PROFESSOR BLEILE, MR. DRESBACH, MR. SEYMOUR.

The facilities provided for the study of anatomy, histology and physiology are excellent. The laboratory is supplied with skeletons, papier-

mache manikin, and many models, including models of the eye, ear, larynx, etc. The apparatus of the department for work in physiology is of the best and most approved construction, and is adapted to the thorough performance of the fundamental physiological experiments. Myographs, spectroscopes, microscopes and the necessary chemical outfit are also provided. For work in histology the equipment includes twenty-four individual tables for student experiments, each table being supplied with a good microscope, microscopical accessories, microscopical re-agents; and for advanced work, the needed apparatus for instruction in the various methods of hardening, staining, imbedding, section-cutting and injection. The laboratory also has excellent microtomes, imbedding baths and other essentials of an histological outfit. The equipment of the laboratory make it possible to offer a large range of work for the choice of students in advanced courses.

1. **Human Anatomy and Physiology.** Lectures, recitations and laboratory work three times a week. First, second and third terms. This course must be preceded or accompanied by a course in chemistry. Sec. I, M. W., F., at 8. Mr. Dresbach. Sec. II, M., Th., F., at 10. Professor Bleile.
3. **Chemical Physiology.** Three times a week. Third term. M. Tu., W., 1 to 4. Professor Bleile.
4. **Histology and Histo-Chemistry.** Credit five hours through the year. M., Tu., W., 1 to 4. Professor Bleile, Mr. Dresbach, Mr. Seymour.
The work of this course is also offered in the summer by Mr. Dresbach, beginning June 29th, and continuing six weeks.
5. **Microscopy and Urinary Analysis.** Lectures and laboratory work Twice a week. Third term. Hours to be arranged. Professor Bleile, Mr. Dresbach.
9. **Physiological Laboratory.** Three times a week, three terms. Laboratory hours to be arranged. Professor Bleile.
11. **Physiological Laboratory.** Five times a week, three terms. Hours to be arranged. Professor Bleile.

Ancient Art

(See Greek Language and Literature.)

Astronomy

(The Emerson McMillin Observatory.)

H. C. LORD, DIRECTOR.

J. WARREN SMITH, SPECIAL LECTURER ON METEOROLOGY, B. F. MAAG, ASSISTANT.

The Emerson McMillin Observatory was founded in 1895 through the generosity of Mr. Emerson McMillin. The buildings and equipment were designed primarily for instruction purposes. The main building contains on the first floor, an office and library, an assistant's room, students' computing room, lecture room, comparator room, clock room and

two observing rooms. On the second floor the 25 foot dome and a large photographic dark room. In the basement is a large and well equipped instrument shop, and a large spectroscopic laboratory. The remaining buildings consist of a specially designed theodolite house and the Director's residence.

The equipment consists of a 12½-inch equatorial, mounted by Warner and Swasey, objective by Brashear, a universal star spectroscope by Brashear, position micrometer by Warner and Swasey, 3-inch combined transit and zenith telescope by Saegmuller, 4-inch portable equatorial by Alvan Clark, 2½-inch zenith telescope by Troughton and Sims, 12-inch theodolite and two smaller ones by Troughton and Sims, comparator by Zeiss, 5-foot concave grating spectroscope by Brashear, clock by Riefle, chronograph, chronometer, sextants, meteorological instruments, etc.

The spectroscopic laboratory is provided with a 2 H. P. gas engine and dynamo, and a large storage battery.

1. **General Astronomy.** Lectures and recitations on the general principles of Astronomy. Non-mathematical. Text-book, Young's General Astronomy. Twice a week, three terms. Tu., Th., at 1. Professor Lord.
2. **Astronomy, Geodesy and Least Squares.** Lectures on practical Astronomy, supplemented by practice with the instruments of the Emerson McMillin Observatory. Text-book, Doolittle. Three times a week, three terms. M., W., F., at 11. Professor Lord and Mr. Maag.
3. **Meteorology.** Lectures on practical meteorology, supplemented by laboratory work in map and chart making and regular observations with the instruments in use by the Weather Bureau. Text-book, Waldo, with daily weather maps issued by the Bureau. Twice a week. Third term. Tu., Th., at 4. Mr. J. Warren Smith.
4. **Advanced Astronomy.** Lectures, reading and laboratory work from 3 to 5 hours a week, three terms. Courses will be offered in Theoretical Astronomy or Astrophysics, as students may elect. Students must have had calculus. Hours to be arranged. Professor Lord.

Bacteriology

ASSOCIATE PROFESSOR MORREY.

The Department of Bacteriology will occupy a portion of the new Veterinary Laboratory Building. There will be a laboratory on the second floor accomodating about thirty students, another in the basement with places for fifteen men, a private laboratory and office. a room for exprimental animals in the attic, one for inoculated animals in the basement, and two incubator rooms. These rooms will each be equipped with the necessary incubators, hot air and steam sterilizers, autoclaves, microscopes, microtomes, etc. for instruction, with facilities for advanced and original work. It is intended that the furnishings shall be of the latest and best type, so that not only elementary teaching but also research may be carried on under the most favorable circumstances.

5. **Bacteriology.** One lecture, two laboratory periods of three

hours each through the year. First term general, second and third terms special along one of the following lines: a) Pathogenic Bacteria, b) Agricultural, c) Dairy, d) Sanitary Bacteriology and Water examination, e) Bacterial Chemistry, the products of bacterial action, enzymes, ptomaines, toxins, etc.

6. **Advanced Bacteriology.** More advanced work on lines of Course 5.

Both courses are open to graduate students.

Botany

(Botanical Hall.)

PROFESSOR KELLERMAN, ASSISTANT PROFESSOR SCHAFFNER.

THE GENERAL BOTANICAL LABORATORY is on the second floor of Botanical Hall. It is equipped with compound microscopes of the Bausch and Lomb, the Leitz and other patterns; and accompanying each is a tray of tools and a case of reagents. There are more than fifty dissecting microscopes, also charts, and several minor pieces of apparatus for experiments in vegetable physiology. Three smaller rooms are also provided as laboratories for special work, as well as a dark room for photography. Other facilities for the illustration of the courses in botany, and for practical training in the same are: A general herbarium, including flowering plants, ferns, mosses, fungi and algae; a state herbarium, a collection of fruits and seeds, valuable timbers, woods, grasses and various economic products of the vegetable kingdom; ornamental grounds and woodland planted with a large variety of evergreen and deciduous trees and shrubs; and a greenhouse and propagating house with a fair collection of native and exotic plants.

THE BOTANICAL MUSEUM contains the general University herbariums, and the State herbarium, over 50,000 mounted sheets, also Professor Kellerman's private herbarium of over 20,000 specimens of parasitic fungi deposited for use in the Botanical department; a complete collection of the native woods of Ohio; a collection of the seeds and fruits of plants; a collection of native medicinal plants a general collection of vegetable products, including seeds, textile fabrics, coloring substances, etc., illustrating economic or applied botany.

UNDERGRADUATE COURSES

As a prerequisite for admission to any of the courses in Botany, the student must be prepared in Botany as stated in the Requirements for Admission to this College.

3. **Systematic and Physiological Botany.** Lectures and recitations; Kraemer's Botany and Pharmacognosy is used. Credit four hours. First term. This course is planned for students preparing for a course in medicine or in pharmacy; it deals somewhat fully with Ecology and Physiology, also Morphology and Classification. The students are required to add to their herbariums begun in the Spring term and thus obtain a full set of the native medicinal plants. M., Tu., F..

at 10; Laboratory, Th., 1 to 3. Professor Kellerman and Assistant Professor Schaffner.

4. **Medical Botany.** Credit two hours. Second term. This course is devoted exclusively to laboratory study of the medicinal plants and vegetable products used in medicine. Kracmer's Botany and Pharmacognosy is mainly followed. Tu., Th., 2 to 4. Assistant Professor Schaffner.
6. **Physiological Botany.** Lectures and recitations three times a week and laboratory and field work. First term. Text-book, Coulter's Plant Studies. M., W., F., at 8. Laboratory, Sec. 1, Monday, 1 to 4. Sec. 2, Wed., 1 to 4. Professor Kellerman and Assistant Professor Schaffner.
7. **Economic Botany.** Lectures, recitations and laboratory. Second term. Text-book, Coulter's Plant Studies. This course is, in part, a continuation of course 9 but the major portion of the term is devoted to a botanical study of economic plants and the vegetable products of commerce. M., W., F., at 8. Laboratory, Sec. 1, Monday, 1 to 4. Sec. 2, Wed., 1 to 4. Professor Kellerman and Assistant Professor Schaffner.
8. **Vegetable Pathology.** Lectures, recitations. Laboratory and field work. Third term. The diseases of plants due to inorganic causes are briefly studied, but the main part of the course is devoted to a study of the parasitic fungi most destructive to cultivated plants. The means of their prevention forms the last part of the course. The laboratory and field work deals mainly with the commonest and most injurious parasitic fungi. Each student takes up the latter part of the term some economic subject or group of parasites for special study. M., W., F., at 8. Laboratory, Sec. 1, Tuesday, 1 to 4; Sec. 2, Thursday, 1 to 4. Professor Kellerman and Assistant Professor Schaffner.
9. **Dendrology.** Lectures and field work. Credit two hours. First Term. Kellerman's Forest Trees of Ohio and various reference books are used. The native trees are studied and illustrative collections made. Tu., Th., 10 to 12. Professor Kellerman.
10. **Dendrology.** Laboratory work and special investigations on the structure and diseases of timber. Credit two hours. Second term. Laboratory open daily 8 to 12. Professor Kellerman.
11. **Laboratory Work.** Special investigations in Economic Botany and Vegetable Pathology. First, second and third terms. Credit two to five hours. Laboratory open daily 8 to 12. Professor Kellerman and Assistant Professor Schaffner.
13. **Household Botany.** Spring term. Lectures and Seminary work Tuesday and Thursday at 8; Laboratory Tu., Th., at 8 and M. and W., 8 to 10. Credit 4 hours. This course is planned exclusively for students in Domestic Economy, and is devoted to those phases which directly concern household work and home life. It includes a study of such economic species as culinary, medicinal, starch, oil

and fibre-producing plants. Special attention is given to yeast, fermentations, enzymes, bacteria, antiseptics, fungicides, food-deströying fungi, and edible and poisonous mushrooms.

16. **Laboratory Work.** In this course the student undertakes special investigations on medicinal plants, poisonous plants, adulterations, etc. Credit two to five hours. Laboratory open daily 8 to 12. Professor Kellerman and Assistant Professor Schaffner.
17. **Forest Botany.** Lectures and Seminary work Monday and Friday at 10; laboratory and field work Tuesday and Thursday, 2 to 4. Credit 4 hours. This course is open to students who have completed Botany 6, 7 and 8 or 21, 22 and 23. It includes a special study of native and introduced trees and the preparation of a dendrological herbarium.
18. **Normal and Pathological Histology of Wood.** Seminary F., at 10; Laboratory work M., Tu., Thu., 2 to 4. Credit 4 hours. This is a continuation of course 17 and includes a study of the development of wood, characters of coniferous, hard and soft woods and changes due to attacks of fungi. The students are required to prepare a series of gross and microscopic sections.
19. **Forest Ecology and Pathology.** Lectures and Seminary work Monday and Friday at 10; laboratory and field work Tuesday and Thursday, 2 to 4. Credit 4 hours. This is a continuation of course 18, and includes a study of the stem, leaf and root system in relation to the environment; of seed distribution and seedlings; and characteristics and distribution with reference to geological and physiographic, as well as other ecologic conditions. Students are required to prepare a pathological herbarium.
21. **Ecology.** Lectures, recitations, laboratory. First term. Coulter's Plant Relations is used the first term and his Plant Structures and department reference books the remainder of the year. Besides the general work in laboratory, lecture room and field, each student is assigned a special subject in Ecology; occasional reports on current botanical literature are also required. Tu, Th., at 9. Laboratory Tu., 2 to 4. Professor Kellerman and Assistant Professor Schaffner.
22. **Morphology and Physiology.** Continuation of course 21. Credit three hours. Second term.
23. **Systematic Botany.** Continuation of course 22. Credit three hours. Third term.
24. **Laboratory and Field Work.** Credit two or three hours. Three terms. Daily 8 to 12. Professor Kellerman and Assistant Professor Schaffner.
25. **Laboratory Work in Histology and Physiology.** Credit three to five hours. Three terms. Prerequisite courses 6, 7, 8, or 21, 22, 23. Laboratory open daily. Assistant Professor Schaffner.
26. **Advanced Laboratory Work in Histology and Microtechnique.** Credit five hours. Three terms. Prerequisite courses 6, 7, 8 or 21, 22, 23. Laboratory open daily. Assistant Professor Schaffner.

27. **Laboratory and Field Work in Systematic Botany.** Credit three to five hours. Three terms. Prerequisite courses 6, 7, 8, or 21, 22, 23. Laboratory open daily. Professor Kellerman.
32. **Minor Investigations.** Field and laboratory work. Credit one to three hours. Three terms. Prerequisite course 7. Daily. Professor Kellerman and Assistant Professor Schaffner.
33. **Current Literature.** Prescribed critical reading and indexing. Credit one to three hours. Three terms. Prerequisite course 7. Daily. Professor Kellerman.

GRADUATE WORK

28. **Research Work in Systematic Botany.** Credit five hours. Three terms. Prerequisite courses 6, 7, 8, or 21, 22, 23. Laboratory open daily. Professor Kellerman.
29. **Research Work in Morphology and Physiology.** Credit five or ten hours. Three terms. Prerequisite course 26. Laboratory open daily. Assistant Professor Schaffner.
30. **Monographic Work.** Credit five or ten hours. Three terms. Prerequisite course 27. Laboratory open daily. Professor Kellerman.
31. **Research Work in Ecology.** Credit five or ten hours. Three terms. Prerequisite courses 6, 7, 8, or 21, 22, 23. Laboratory open daily. Assistant Professor Schaffner.

Chemistry

(Chemical Hall, Rooms 7, 14, 18, 20, 21, 22, 24, 25.)

PROFESSOR MCPHERSON, EMERITUS PROFESSOR NORTON, ASSOCIATE PROFESSOR HENDERSON, ASSOCIATE PROFESSOR FOULK, MR.

MUMMA, MR. WEBB.

The laboratories of the department are located in Chemical Hall and accommodate about six hundred students. Each laboratory is equipped with all the necessary conveniences — water, gas, electric lights, distilled water, steam ovens, automatic air blasts, suction pumps, etc. The department is liberally supplied with the best apparatus and materials for both lecture room and laboratory work. Each student has his own desk with drawers and locker. All supplies are secured from the chemical store room which has always on hand a complete stock of all necessary materials.

1. **Elementary Chemistry.** Arranged for students who have little or no knowledge of chemistry. Three sub-divisions; one lecture, one quiz, and three hours laboratory practice weekly throughout the year. In the laboratory the student performs an extended series of experiments illustrating the principles of chemistry. Three hours credit. First, second and third terms. Lecture, Th., at 1. Quiz, Tu., at 1. Laboratory, M., 1-4, or Sat. 9-12. Associate Professor Henderson, Mr. Mumma, Mr. Webb and the Department Fellows.

2. **Qualitative Analysis.** Laboratory, lectures and quiz. Students familiarize themselves with the properties of the elements with a view to their detection, and then apply this knowledge to the analysis of unknown substances. This course must be preceded by course 1 and accompanied by course 21 unless special permission is obtained from the instructor in charge. Three to five hours credit. First and second terms. Students electing this course will take course 17 in the third term. Afternoons. Associate Professor Foulk.
17. **Inorganic Preparations.** Laboratory and recitations. This course includes the preparation of chemically pure inorganic substances from the crude materials. Three to five hours credit. Third term. Afternoons. Associate Professor Henderson.
21. **Advanced General Chemistry.** Lectures and recitations. This course consists of a rapid review of the fundamental physical and chemical laws relating to chemistry, followed by a thorough study of the principles of general inorganic chemistry. It should accompany course 2. Two hours credit. First, second and third terms. Tu. and Th., 9-10. Associate Professor Henderson.
20. **Quantitative Analysis.** Laboratory, lectures and recitations. This course is designed to give the student a knowledge of the first principles of gravimetric and volumetric analysis. It must be preceded by courses 1 and 2 and must be accompanied by course 31. Three to five hours credit. First, second and third terms. Lecture, M., at 1; Laboratory, afternoons. Associate Professor Foulk.
31. **Stoichiometry.** Recitations. Drill in solution of chemical problems. Two hours credit. First term. Tu., and Th., 11-12. Associate Professor Foulk.
8. **Organic Chemistry.** Two recitations and six hours laboratory work weekly. The laboratory work includes the preparation of typical organic compounds. The course must be preceded by courses 20 and 21 unless special permission is obtained from the instructor in charge. Five hours credit. First term. Recitations Tu. and Th., 10-11. The laboratory is open afternoons. Professor McPherson.
9. **Organic Chemistry.** Continuation of course 8. Recitations Tu. and Th., 10-11. The laboratory is open afternoons. Second and third terms. Professor McPherson.
11. **Toxicology.** Lectures and recitations. Poisons—their effect, antidotes and detection. This course must be preceded by the equivalents of courses 1 and 2. Four hours credit. Third term. Tu., W., Th., F., 10-11. Professor Norton.
30. **Physical Chemistry.**
 - (a). Lectures and recitations. This course aims to give the student such a general knowledge of physical chemistry as may be obtained by a thorough study of some one of the standard texts on the subject. The course must be preceded by courses 20 and 21, and may be taken independently of course 30(b). Three hours

credit. Second and third terms. M., W., F., at 8. Associate Professor Henderson.

(b). **Laboratory.** A course in experimental work designed to illustrate the leading principles of the science. The course must be accompanied or preceded by course 30(a). Three hours credit. Second and third terms. Afternoons. Associate Professor Henderson.

35 Rare Elements. Lectures and recitations. This course is designed to serve two purposes. It extends the student's knowledge of chemical facts and principles by a study of those elements usually passed by with brief comment in general courses. It is of considerable practical value to students of metallurgy, since many of the rarer metals are now frequently met with in the metallurgical industries, and the analyst must be familiar with their properties. Three hours credit. First term. M., W., F., at 8. Associate Professor Henderson.

33. Analytical Chemistry. Laboratory, lectures and recitations. The laboratory work is in the main a continuation of course 20, which must precede it. Lectures and recitations include a general review of qualitative and quantitative methods and the theory of analytical operations and reactions. Four or five hours credit. First, second and third terms. Hours to be arranged with the instructor. Associate Professor Foulk.

32. Industrial Chemistry. Laboratory and lectures. This course must be preceded by at least the equivalent of course 20. Four hours credit. First and second terms. Tu., Th., at 10; W., F., 1 to 3. Professor Norton.

15. Sanitary Analysis. Lectures and laboratory. A study of the most important chemical methods for the analysis of water and air. This course must be preceded by course 20. Four hours credit. Third term. Tu., Th., at 10; F., 1 to 4. Associate Professor Foulk.

25. Historical Chemistry. Lectures and recitations. Three hours credit. Second term. This course must be preceded by course 21. Hours to be arranged with the instructor. Professor Norton.

26. Chemical Seminary. Advanced students meet for the discussion of special topics and current literature. One hour credit. First, second and third terms. Monday evenings.

27. Advanced Chemistry. Laboratory and reference work. Three to five hours credit. First, second and third terms. Hours to be arranged with the instructor.

(a) **Organic.** Arranged for students who have completed courses 8 and 9. The work includes the further preparation of typical organic compounds, their purification and analysis. Professor McPherson.

(b) **Inorganic.** This course is especially designed for students who have completed course 17, and are desirous of studying the

methods of preparation and the properties of a series of inorganic substances; or for those who have completed course 21 and desire to continue the study of certain chapters of inorganic chemistry. Associate Professor Henderson.

- (c) Analytical. Special topics such as the critical study of methods, etc. Associate Professor Foulk.
28. **Organic Chemistry.** Lectures on special topics. This course must be preceded by courses 8 and 9 and preferably by course 27 (a). Two hours credit. Third term. Hours to be arranged with the instructor. Professor McPherson.
29. **Research Work, Library and Laboratory Work.** Five to ten hours credit. First, second and third terms. Hours arranged with the instructor. Professor McPherson, Associate Professor Henderson, Associate Professor Foulk.
- 36 **The Teaching of Chemistry.** This course is arranged for students who expect to teach chemistry in secondary schools. It includes a general discussion of the equipment of laboratories, methods of teaching and related topics. Each student will spend two hours in conference and three hours in supervising the laboratory work of the freshman students. The course is open only to advanced students and no student is allowed to take it except by permission of the instructor in charge. Three hours credit. Third term. Conferences Tu. and Th., 9-10. Professor McPherson.

Civil Engineering

(Hayes Hall, Rooms 13, 14, 19.)

PROFESSOR SHERMAN.

(Of the twenty courses offered in the Department of Civil Engineering, the following course is open to students of the College of Arts, Philosophy and Science.)

21. **Surveying.** Recitations and Field Work. Three credit hours. Third term. Open to those who have had Mathematics 21, 22, 23 or equivalent. M., W., F., at 9. Professor Sherman.

Domestic Science

(Hayes Hall, Rooms 1, 3, 10.)

PROFESSOR STONER.

(Of the eleven courses offered in the Department of Domestic Economy, the following are open to students of the College of Arts, Philosophy and Science.)

1. **Food Economics.** Two lectures and three laboratory periods each week. Five hours credit. Lectures embracing a study of the evolution of society as affected by food conditions; second, a study of food principles; third, the functions of the various foods; fourth, chemistry as applied in the study of the science of nutrition; fifth, history and manufacture of food material; sixth, the care and use of ordinary utensils and furnishings. Laboratory work includes experiment work with foods, and the preparation and serving of typical foods of certain classes. First term. Recita-

- tions, M., W., at 9; Laboratory, Tu. and W., 1-4. Professor Stoner.
2. **Food Economics.** Two lectures and three laboratory periods each week. Five hours credit. By lecture and research work, the relative nutritive and money values of foods are considered. Each student prepares a weekly dietary for the family, the amount to be expended limited by the instructor. United States Agricultural Bulletin Standards used. Parallel readings are required. Laboratory work is a continuation of course 1. Second Term. Recitations, M., W., at 9. Laboratory, Tu. and W., 1-4. Professor Stoner.
 3. **Advanced Food Economics.** Third term. This subject includes advanced work in Food Economics, general dietetics and work in the preparation of foods and a brief study of the preservation of foods. Parallel readings are required. Credit five hours. M., and Tu., at 9, and Tu. and W., 1-4. Professor Stoner.

Courses 1, 2 and 3 constitute a continuous year's work and must be elected as a whole. Election for a single term will not be permitted. Open only to those who have had chemistry 1 or equivalent, and botany.

10. **Household Economics.** Lectures and recitations, Tu., and Th., at 9. A consideration of the best location for a house: its hygienic and sanitary construction and arrangement. A consideration of water supplies, sanitary drainage, care of plumbing, etc. Discussion of approved methods of the management of lighting, heating and ventilating systems. A study of the best practical and scientific methods of general household management. Furnishings of the home from the standpoint of utility, sanitation, economy, etc. A study of household accounts, expenditures, etc. Parallel readings are required. Professor Stoner.

Drawing

(Hayes Hall, Rooms 22, 24, 37.)

PROFESSOR BRADFORD, ASSOCIATE PROFESSOR FRENCH, MR. LEWIS,
MR. MARTIN, MR. TIDBALL.

(Of the nineteen courses offered in the Department of Drawing, the following are open to students in the College of Arts, Philosophy and Science.)

7. **Photography.** Lectures and practice. Two credit hours. First term. M., Tu., 1-3. Open only to those who have had chemistry 1. Professor Bradford.
10. **Mechanical Drawing.** Lectures and practice. Elementary mechanical drawing. Three credit hours. Second term. Th. and F., 1-4. Associate Professor French.
14. **Pen Drawing.** Two periods a week. First term. This course must be preceded by course 26. M. and Tu., 2-4. Mr. Lewis.
17. **Water or Oil Color Painting.** Practice and occasional lectures. Two credit hours. First term. Mr. Martin.
18. **Water or Oil Color Painting.** Practice and occasional lectures. Two credit hours. Second term. Mr. Martin.

19. **Water or Oil Color Painting.** Practice and occasional lectures. Two credit hours. Third term. Mr. Martin.
17, 18 and 19 constitute a continuous year's work. Prerequisite 24, 25 and 26.
24. **Freehand Drawing.** Practice and occasional lectures. Pencil drawing from models and plaster casts. One credit hour. First term. Mr. Lewis, Mr. Martin.
25. **Freehand Drawing.** Practice and occasional lectures. Charcoal drawing from models and plaster casts. One credit hour. Second term. Mr. Lewis, Mr. Martin.
26. **Freehand Drawing.** Practice and occasional lectures. Charcoal drawing from plaster casts and still-life. One credit hour. Third term. Mr. Lewis, Mr. Martin.
24, 25 and 26 constitute a continuous year's work.

Economics and Sociology

(University Hall, Rooms 17, 18, 20, 29.)

PROFESSOR CLARK, ASSISTANT PROFESSOR HAGERTY.

Three well-defined lines of work are offered within the field of this Department. First, the *General Economic Group of Courses*; second, the *Commercial Group*; third the *Sociology Group*. Students are advised: (a) to elect work with a definite aim in view; and (b) with a view to proper coordination with work in allied departments.

In correspondence with the study groups exhibited on pages 28-30 of this catalogue the following scheme presents the logical method of electing the work offered by this department and is therefore recommended. Exceptions may be made, where necessary, by conference with the head of the department.

DEPARTMENT GROUPS

(Figures () indicate hours.)

	FIRST YEAR	SECOND YEAR	THIRD YEAR	FOURTH YEAR
General Economics	2, 3, 4 (3) or 1 (3).	1 (3); 5, 6, 7 (2); 8, 9 (2).	5, 6, 7 (2); 8, 9 (2); 11 (3) and 13 (1); 10 (3) and 14 (1).	20 12 (2); 15 (2), 14 (1); 21 (2); 16, 17, a, b, c.
Commerce	1 (3)	5, 6, 7 (2); 8, 9 (2); 2, 3, 4 (3).	10 (3) and 14 (1). 18, 19 (2).	18, 19, (2); 15 (2); 16 (2); 17e; 17c, d, g.
Sociology	2, 3, 4 (3).	11, 22 (3); 1 (3); 5, 6, 7 (2);	11, 22 (3), and 13 (1); 21, (2), 20, 12 (2); 8, 9 (2)	21, (2); 17f (3); 16, (2); 20, 12 (2); 17g.

The University, through the efforts and generosity of its friends, is possessed of a unique equipment for study purposes in these lines. This equipment comprises a large collection of railroad, municipal and school bonds; of stocks of all kinds; of letters of credit, drafts, foreign bills of exchange, bills of lading, checks, enclosures, statements, insurance policies, trust certificates, notes, mortgages and all the necessary forms of business paper; also collections of coins illustrative of various periods in our monetary history, foreign coins, and scrip; also sets of maps and charts and a Kiepert-Commercial Globe 80 cent. in diameter. Ample facili-

ties for statistical work are provided and a seminary room set apart for the use of laboratory material, documents, etc., is always open to advanced students. It is the policy of the department to make the statistical investigations and research work of advanced students contributory to the permanent equipment of the department, thus enriching the facilities from year to year with material of scientific and pedagogical value.

The University possesses a special library in economics consisting of several hundred volumes and pamphlets. A large number of financial, commercial and trade journals are received and filed regularly. The business men of Columbus and others have contributed generously to the equipment of this commercial library.

UNDERGRADUATE COURSES

1. **Elements of Political Economy.** A careful study of the laws of production, exchange, distribution and consumption of wealth; combined with an analysis of the industrial actions of men as regards land, labor, capital, money, credit, rent, interest, wages, etc. Text-book, lectures and individual investigations. In the Economics-History group an option is given. It is desirable that students who do not come well prepared in history and with a fair amount of general knowledge of economic principles take courses 2, 3, 4, deferring course 1 to their second year. Law students will find this course well adapted to their work. Three hours through the year. Sec. 1, M., W., F., at 8; Sec. 2, M., W., F., at 9. Assistant Professor Hagerty. This course should precede all courses except 2, 3, 4.
2. **The History of Industrial Society.** A general view of the evolution of modern industrial society; involving a study of the manorial and guild systems; of the rise of class interest; the formation of trading companies; land-holding; labor laws; the development of capitalistic enterprise and the economic legislation, ideas and theories that grew out of these conditions; with special reference to England from the eleventh century. Text book, lectures and assigned readings. First term. Courses 2, 3, 4 are open to all students of the University without preliminary requirements. M., W., F., at 9. Professor Clark.
3. **Industrial and Financial History of the United States.** A complete survey of American industries, financial resources and policies. The social aspects of the subject will be treated, in order to prepare the student for course 11 the following year. Lectures and assigned readings. Second term. M., W., F., at 9. Professor Clark.
4. **Transportation.** A study of the development and present economic status of roads, canals and railroads in their relation to industry, society, and to the state. Third term. Lectures and assigned readings, M., W., F., at 9. Professor Clark.
5. **Practical Problems: Immigration, Money, Land.** First term. Tu., Th., at 9. Prerequisites, 1, or 2, 3, 4. Professor Clark.

6. **Practical Problems: Railroads, Tariff, Crises.** Second term. Tu., Th., at 9. Should be preceded by course 5. Professor Clark.
7. **Practical Problems : Labor and Capital.** Under the head of labor are discussed the problems of co-operation, profit sharing, strikes, eight-hour day, trade unions, etc. Under the head of capital are discussed the problems of municipal ownership of quasi-public utilities, and capitalistic production. Should be preceded by course 6. Third term. Tu., Th., at 9. Professor Clark.
8. **Public Finance and Taxation.** This course aims to make the student acquainted with the theory of public revenue and expenditure; and with the leading systems of financial administration throughout the world. Text-Book, (Adams, Finance) and lectures. First and second terms. Tu. and Th., at 2. Assistant Professor Hagerty.
9. **Money, Credit and Banking.** This course involves the history and theory of the subject, a comparative study of the monetary systems, currency, etc., together with the various methods of banking; national banks; clearing house system, etc.; with a critical analysis of proposals for reform. Lectures and collateral readings. Third term. Tu., Th., at 2. Assistant Professor Hagerty.
10. **Commerce.** The scope of this course is seen in the following arrangement of the work. First term: History and Geography of Commerce. Second term: Theory and Technique of Commerce. Third term: Art of Commerce. The aim is decidedly practical and it is suggested that the student might with profit coordinate it with one or more of the following courses: Botany 7, Chemistry 32; Drawing 1; Geology 6; Political Science 4 and 5; and certain courses in Law. This course must be preceded by course 1, and either 2, 3, and 4; or 5, 6, and 7, and is to be elected in the third year. It should accompany 8 and 9 and be followed in the fourth year by 18, 19, and 17e. Lectures, practical investigations and reports. Through the year. M., W., F., at 11. Professor Clark.
11. **Sociology.** Text-books, lectures and original investigations. Through the kindness of the various officers of the Godman Guild House opportunity will be provided students in this course of doing practical work at the guild, and the State Board of Charities as well as the officers of the Associated Charities of the city are enlisted in the work of this course. First and second terms. M., W., F., at 1. First term: Giddings' Elements of Sociology. Second term: Henderson's Dependents, Defectives and Delinquents. It should be preceded by 2, 3, 4, or 1. Assistant Professor Hagerty.
12. **The History and Theory of Socialism.** A complete study of the subject in its historical, economic and critical aspects. The socio-economic doctrines of the philosophers, the Utopias of Plato, More, Campanella, Cabet, etc., and the theses of the various German, French and English schools of socialists, will be treated. The origin of private property, the right to labor, rights of industrial

classes, and the modern distributive processes will be analyzed. Syllabus, lectures and collateral readings. Second and third terms. Tu., Th., at 11. Professor Clark.

13. **Sociology and Statistics.** Lectures and laboratory work. Text, Mayo-Smith's *Sociology and Statistics*. This course may be taken separately or accompany course 11, 22, or 21. Through the year, F., at 10. Assistant Professor Hagerty.
14. **Economic Literature and Legislation.** A round-table study of current industrial affairs; reviews of magazine articles, books, bills, etc. Course 14 may be taken separately or accompany course 10, 18 or 20. Students should take this course in their third year with a view to course 15 the following year. Through the year, Th., at 8. Professor Clark.
15. **Seminary in Economics.** Through the year, M., 3-5. Students must take this course in their fourth year. Open to graduates and advanced under-graduates on permission of the head of the department. Should be preceded by courses 14, or 20, 12. The work for the ensuing year, 1903-1904, is outlined as follows: At each alternate meeting a practical problem will be presented and discussed. The other meetings will take up the study of Classical Economists: English, German and American. Those contemplating taking the course should arrange for this work in advance and receive their assignments. Professor Clark.
16. **Thesis Work.** Twice a week, three terms. In this work, as far as possible, only original sources are used, and investigations made from real life. The aim is to set before each student the accomplishment of the task of extending in some degree, however slight, the boundaries of economic and sociological knowledge. Meetings are arranged with the instructor throughout the year. This course may accompany 17. Professor Clark.
18. **Business Laws and Forms** Text-book, lectures and laboratory work. May be taken in connection with course 10. First and second terms. Tu. and Th., at 11. Professor Clark. (Omitted in 1903-1904.)
19. **Corporation Problems.** This course aims at a complete analysis of the subject in both its theoretical and practical aspects. Trusts, Mergers and capitalistic forms of organization in general come under discussion. It follows course 18. Third term. Tu. and Th., at 11. Professor Clark. (Omitted in 1903-1904.)
20. **Economic Thought.** Text-book and lectures. First term. Tu., Th., at 11. This course must be preceded by 1, and 2, 3, 4, and should be taken in the third year. Professor Clark.
21. **Growth and Development of Social Thought and Institutions.** A study of the contributions to social theory of Plato, Aristotle, Aquinas, Comte, Spencer, Ward, Tarde, Giddings, etc. The third term will be devoted to a study of English Social Pioneers. This course should be preceded by courses 2, 3, 4 and 11, 22. Tu., Th., at 10. Through the year. Lectures and reports. Assistant Professor Hagerty.

22. **Primitive Society.** This course must be preceded by course 11. Text-book: Tyler's Anthropology. Third term. M., W., F., 1. Assistant Professor Hagerty.

GRADUATE COURSES

17. **Advanced Economics.** From one to ten times a week, three terms. Hours arranged with students individually. Open to undergraduates only on permission of the head of the department. The aim of these courses is to offer the student an opportunity to specialize to any degree he may desire along the various lines within the field of the department. Elections will naturally fall under the following heads:

- (a) Theoretical problems. (b) Historical Problems. (c) Practical Problems. (d) Finance. (e) Commerce. (f) Sociology (Theoretical or Practical). (g) Statistics. (h) Teacher's Course and Training for Fellowship.

When several students elect the same line of work, they may constitute themselves a group and a *Seminary* will be organized as a nucleus for such work. A Seminary in Sociology (17f) is announced for the year 1903-4. Students should give notice in advance if they desire to enter this course. Tu., 3-5. Professor Clark and Assistant Professor Hagerty.

Education

(University Hall, Room 51 and 54.)

ASSOCIATE PROFESSOR MAJOR, ASSISTANT PROFESSOR HAINES.

The courses of this department are designed to meet the needs of three classes of students; first, those who, although not intending to engage in educational work, desire some acquaintance with the principles of education considered as a function of society; second, those who desire to make a professional study of education as a part of their preparation for positions as teachers, principals, or superintendents; third, those preparing to teach education in normal schools or colleges.

The following courses offered by other departments of the University are especially valuable for professional students of education: Philosophy, 18, 19, 20, 21, 29, 42; Anatomy and Physiology, 1; Zoology, 21; Sociology, 11; European History, 1, 2, 3. Philosophy 18 and 19 or the equivalent required for admission to all courses except 1.

1. **Educational Psychology.** The aim of this course is to make a thorough study of laws and principles selected from standard psychological literature which seem to bear upon educational theory and practice. Emphasis is laid upon the function of psychology in determining the selection and arrangement of school studies as well as upon its bearing on class-room procedure. The work of the first two terms will be based on James' Talks on Psychology and Adams' Herbartian Psychology supplemented by reference to

standard psychological and educational literature. The course will include such topics as: The physical basis of mental life, native impulses and interests, habit, association of ideas, interest and attention, imitation and suggestion. The work of the third term will consist of a study of normal mental types, a description of the so-called stages of mental development, special topics in mental pathology. Open to second year students. Three terms. M., W., F., at 11. Associate Professor Major.

2. **Introduction to Educational Theory.** The chief purpose of this course is to enable the student to understand the nature of present day educational problems and to arouse interest in their critical study. An effort is made also to establish a body of educational principles derived from ethics, psychology, biology and sociology. The following topics will indicate the general nature of the course: Education as a science; the aim of education; educational values; the relation of psychology to education; the meaning and value of child-study; the learning process; stages of mental development; the selection and arrangement of school studies; prescribed and elective courses of study. Three terms. T., Th., at 10. Associate Professor Major.
3. **History of Education.** This course gives an account of the most important educational movements and systems beginning with the oldest culture nations and concluding with a study of the present trend of education in this country and Europe. Constant reference is made to the influence of religious, political, and social ideals in controlling a people's educational aims and methods. Greek education; the rise of the universities; the Renaissance; the Reformation and education; the rise and development of humanism; the development of modern theories and systems of education. Should be preceded or accompanied by European history, 1, 2, 3. Three terms. M., W., F., at 2. Assistant Professor Haines.
4. **Child Study.** The first part of this course is designed to present the general facts and laws of physical growth and development with special reference to school hygiene. The following topics indicate the nature of this part of the course: Laws of bodily development, development of the nervous system, defects of sight and hearing, the fatigue problem. Principal references: Donaldson's *Growth of the Brain*, Warner's *Study of Children*, Rowe's *Physical Nature of the Child*. The second part of the course aims to describe the characteristic features of child mind, to study the principles and empirical data of mental development with special reference to educational theory and practice. The course includes a study of typical definitions of mental development, the theory of nascent periods, children's imagery, types of children, mental defects and abnormalities, the value of laboratory tests of mental ability. Principal references: *Pedagogical Seminary*; *Trans. Ill. Soc. for Child Study*; *Educational Review*; Sully's *Studies of*

Childhood; Barnes' Studies; Baldwin's Mental Development. Three terms. M. and F., at 10. Associate Professor Major.

5. **Science of Education.** This course aims to afford a wide view of the science of education, endeavoring to develop a consistent theory of education. It is especially intended for students who expect to deal with the larger problems of education which confront the superintendent or principal. It means to widen the horizon and at the same time orient the student in this larger world. But all teachers should have this enlarged view and intelligent grasp of the fundamental problems of education, to make them masters of their craft. It should help all specialists to see the place of their particular grade or subject in the developmental process of the individual pupil. It is an essential part of the professional training of the teacher. Philosophy 18, 19 and education 1, 2 or 3 must precede this course. Lectures, readings and reports. Three terms. M., W., and F., at 11. Assistant Professor Haines.
6. **Modern Educational Systems.** A comparative study of the educational systems of Germany, England and France. The course will deal briefly with the history of these systems, but chiefly with their present organization. The interest centers in the secondary education of those countries, and so the course will appeal chiefly to prospective high school teachers, or those who will be called upon to organize and develop high schools. Russell's German Higher Schools, Balfour's Educational Systems of Great Britain and Ireland, and the Reports of the U. S. Commissioner of Education constitute the essential literature for the course. Lectures, reading and reports. T. and Th., at 2. Associate Professor Major.
7. **Secondary Education.** The history, curriculum, organization and administration of secondary education in the United States. After making a short study of the historical development of secondary education in the United States, the course will be concerned mainly with the problems of the public high school and will include a consideration of the various functions of the high school; the educational value and arrangement of the high school studies now generally accepted; the demand for changes in the contents and organization of the high school curriculum. A study of the Reports of the Committee of Ten and of the Committee on College Entrance Requirements will form an important feature of the course. The course is intended primarily for those who are preparing to become high school teachers or principals. Open to third and fourth year students, and graduates. Three terms. T., Th., at 11. Associate Professor Major.
8. **Educational Classics.** The aim of this course will be to make a critical and comparative study of such classics as Plato's Republic, Rousseau's Emile, Pestalozzi's Leonard and Gertrude, Froebel's Education of Man, Herbart's Science of Education, Spencer's Education. Lectures, readings and reports. Three terms. M. and W., at 2. Associate Professor Major.

9. **Seminar.** Designed for students who wish to investigate special problems in education. Members of the course will work independently, but will meet once a week for general discussion of some subject under investigation. Open only to fourth year students and graduates who have worked extensively either in philosophy or education. Three terms. F., 2-4. Associate Professor Major.

Electrical Engineering.

[Electrical Building, Office Room 8.]

PROFESSOR CALDWELL, ASSISTANT PROFESSOR FISH.

[Of the nine courses offered in the Department of Electrical Engineering, the following are open to students of the College of Arts, Philosophy and Science.]

6. **Electrical Engineering.** Lectures on direct and alternating circuits, dynamo machinery, transformers, accumulators and applications. Twice a week. First and second terms. Open to those who have had mathematics 20 and physics 2. M., Th., at 10. Professor Caldwell.
7. **Electrical Engineering.** Laboratory work on the subjects treated in course 6, which it accompanies. Twice a week. First and second terms. Saturday, 8 to 12. There will be from 4 to 6 sections of this class as there have been this year, and students can come in one section as well as another depending only on available accommodations. Professor Caldwell, Assistant Professor Fish.
8. **Direct Current Dynamo Machinery.** Generators and Motors, their theory, construction and operation. Lectures, recitations and problems. Four times a week. Second term. Open to those who have had physics 3 and 4. M., Tu., Th., F., at 9. Professor Caldwell.
9. **Elementary Dynamo Laboratory.** Handling and testing of circuits, generators, motors, accumulators, lamps, etc. Four hours. Third term. Must be preceded by course 8. W., Th., F., 1 to 4, and Saturday, 8 to 12. There will probably be two sections, election subject to available accommodations. Professor Caldwell, Assistant Professor Fish.
10. **Alternating Current Circuits and Machinery.** Generators, transformers, single and polyphase motors, apparatus and systems. Lectures, recitations and problems. Three times per week. First and second terms. Must be preceded by course 9. M., W., F., at 11, first term, and 8 second term. Professor Caldwell.
11. **Advanced Dynamo Laboratory.** Continuation of the work begun in course 9, together with accumulators, lamps, alternate current apparatus, telephone apparatus, etc. Three hours. First, second, and third terms. Must be accompanied by course 10. Hours to be arranged. Professor Caldwell and Assistant Professor Fish.

English Literature

[University Hall, Room 31.]

PROFESSOR BARROWS, ASSOCIATE PROFESSOR TAYLOR.

Course (1) is prerequisite to all other courses, except those in the Bible. Most of the required texts of the poets and prose writers included in these courses, except Shakespeare, the Bible and novels, can be obtained of the department at a very moderate charge.

UNDERGRADUATE COURSES

1. **An Introduction to English Literature.** Three times a week through the year. Includes: (1) A review of the development of English literature: for this part of the work, Scudder's Introduction to English Literature is covered in three examinations. (2) Lectures on the elements of literary analysis and interpretation. (3) Critical study of selections characteristic of different authors and of various periods, to secure acquaintance with literary problems, to cultivate perception of literary qualities, and to verify the assertions of the lectures. The book first required for this part of the work is Palgrave's "Golden Treasury." Two sections: Sec. 1, M., W., F., at 8; Sec 2, M., W., F., at 9. Professor Barrows.
2. **From Spenser to Milton, exclusive of the Drama.** Twice a week, first term. This course includes a special study of the Elizabethan Lyrics. Tu., Th., at 1. Associate Professor Taylor.
3. **From Dryden to Pope, exclusive of the Drama.** Twice a week, second term. Particular attention is given to "The Rape of the Lock." Tu., Th., at 1. Associate Professor Taylor.
4. **The Age of Johnson, exclusive of the Drama.** Twice a week, third term. This course is mainly a study of the essayists of the Eighteenth Century. Tu., Th., at 1. Associate Professor Taylor.
5. **Prose from Burke to the Victorian Age.** Three times a week, first term. M., W., F., at 1. Professor Barrows.
6. **Poetry from Burns to the Victorian Age.** Three times a week, second and third terms. M., W., F., at 1. Professor Barrows.
These courses offer a survey of the literature of the early nineteenth century. Lectures on the rise of the romantic spirit; on the development of thought in this period; on the relations of authors to each other and to the times; and on the significance of their writings. Critical study of selections.
18. **Victorian Literature.** Twice a week, through the year. The work of each term may be taken separately. The studies are as follows: In the first term, Tennyson; second term, Browning; third term, which is open to change, in 1903-4, Arnold, Swinburne and Rosetti. Tu., Th., at 2. Associate Professor Taylor.
7. **The English Bible: The Pentateuch and Earlier Histories.** Once a week through the year. Given in 1904-5.

8. **The English Bible: Later Histories, Poetry and Prophecies.** Once a week, through the year. Given in 1902-3. Th., at 8. Professor Barrows.
9. **The English Bible: The New Testament.** Once a week, through the year. Th. at 8. Professor Barrows. Offered in 1903-4.
No other study in this department is prerequisite to these courses in the Bible; they are open to all students in the University, subject to the approval of the appropriate Executive Committee. Required text: The Revised Bible.
10. **The Drama from the Beginning to the Closing of the Theatres.** Three times a week, through the year. In the first term Shakespeare's plays are read, with no more reference to philology and history than is necessary to an understanding of the text, and various problems of dramatic art are discussed in connection with the plays that best illustrate them. In the second term Shakespeare and the best Elizabethan plays are studied in the same way, and there is a course of lectures on the development of the drama. The study of Shakespeare is continued in the third term. M., W., F., at 3. Professor Barrows.
11. **The Modern Novel.** Three times a week, first and second terms. In the first term Scott, in the second term Dickens and Thackeray will be read. M., W., F., at 2. Associate Professor Taylor.
12. **American Authors.** Three times a week, third term. Poe, Hawthorne, Emerson and Lowell are the chief studies. M., W., F., at 2. Associate Professor Taylor.
13. **Chaucer.** Three times a week, first term. M., Th., F., at 10. Professor Barrows.
14. **Milton.** Three times a week, second term. M., Th., F., at 10. Professor Barrows.
15. **Modern Plays.** Three times a week, third term. Selected plays by Dryden, Goldsmith, Sheridan, Knowles, Browning and one living author. M., Th., F., at 10. Professor Barrows.
17. **Masterpieces: A Study of Literary Types.** Three times a week, through the year. Open to undergraduates who have taken not less than twelve term-hours of elective work in this department, and to graduates who have done an equivalent amount of work in literature. The study is of the origin and development of literary types, the best examples in English being chosen for basis. Associate Professor Taylor.
19. **Current Literature.** Twice a week, through the year. Open only to graduates and to undergraduates in the fourth year who have taken two elective courses in this department. The study is of poetry the first term, and of the novel the second and third terms. M., F., at 10. Associate Professor Taylor.

GRADUATE COURSES

The hours assigned to these graduate courses may be changed, if necessary.

16. **Literary Problems.** Twice a week, through the year. A series of

studies of the fundamental problems of criticism. Lectures followed by illustrative readings selected from the entire range of our literature: written reports and discussions. Tu., Th., at 3. Professor Barrows.

23. **Special Investigations.** Two credit hours a week, through the year. This course is designed for those who wish to make an extended investigation of a literary topic. The work will be either (a) a continuation of course 16 open to those who are taking or have taken that course; or (b) an enlargement of course 17 open to those who are enrolled in course 17. (a) F., at 1; Professor Barrows. (b) F., at 4; Associate Professor Taylor.
20. **Translations.** Two credit hours a week, through the year. A study of the indebtedness of English to other literatures, and of various problems of general literature. Tu., at 2. Professor Barrows.
21. **Masterpieces: A Course for Teachers.** Five credit hours a week, through the year. Lectures in outline, to be developed by the student, on the literary aspects of each period, biographical studies of the authors of the masterpieces studied; extended criticism of masterpieces selected in consideration of their importance in the development of literature, and taken up in chronological order. An advanced review of the subject, designed for those who intend to become teachers. Th., at 2. Professor Barrows.
22. **The Development of Literary Types.** Three credit hours a week, through the year. A course in comparative criticism, the types in English literature being referred to their models in classic or romance literature. It calls for a reading knowledge of French or German, and some acquaintance with Greek and Roman literature. In 1903-4 the studies will be as follows: first term, the pastoral; second term, the romance; third term, the novel. Seminary method is followed. M., at 4. Associate Professor Taylor.
24. **Shakespeare: An Attempt at Complete Literary Criticism.** Two credit hours, through the year. Hours to be arranged. Associate Professor Taylor.

Entomology

(See Zoology and Entomology.)

European History

(University Hall, Rooms 7, 36.)

PROFESSOR SIEBERT, MR. MCNEAL.

The courses of instruction in this department are divided into three groups: (1) the general courses in Ancient, Continental and English history (courses 1, 2 and 3; 14; 5 and 6); (2) the advanced courses, dealing in a fuller way with special periods and phases of the subject (courses 4, 7, 8, 9, 10, 11, 12, 15, 16 and 18); and (3) those courses intended to acquaint the student with the principles and method of research (courses 20 and 21).

The general courses are intended to meet the needs of four classes of students: (a) those desiring only a general knowledge of European

history; (b) those looking forward to advanced work in the department; (c) those studying Greek and Latin (see courses 5 and 6); and (d) those expecting to specialize in the line of American history, or to enter upon a legal or business career. For the fourth class courses 4 and 14 are especially recommended.

The advanced courses are intended to acquaint those qualified to enter them with an intimate knowledge of the special period or subject concerned, to give the student a comprehensive acquaintance with the best authorities, and practice in the written and oral exposition of assigned topics. Courses 1, 2 and 3 must precede these advanced courses, except that course 4 should be preceded by course 14.

1. **The Early Middle Ages.** The history of Europe to 1300, including the establishment of the mediæval empire, the formation of the separate states, the rise of the Christian church, the crusades, and the conflict of the empire with papacy. Lectures, recitations and assigned readings. Bimont and Monod, *Europe* to 1328. Three times a week, first term. Two sections. Sec. 1: M., W. F., at 9, Professor Siebert; Sec. II: M., W., F., at 1, Mr. McNeal.

2. **Renaissance.** The history of Europe from 1300 to 1500, giving an account among other things of the revival of learning, the revival of commerce and industry, and the voyages of discovery. Lectures, recitations and assigned readings. Three times a week, second term. Two sections. Sec. I: M., W., F., at 9, Professor Siebert; Sec. II: M., W., F., at 1, Mr. McNeal.

3. **Modern Europe.** A general survey of European history from 1500 to the present time, including the Reformation, the rise of Russia and Prussia, the English and French Revolutions, and the unification of Italy and Germany. Lectures, recitations and collateral readings. Schwill's *Modern Europe*. Three times a week, third term. Two sections. Sec. I: M., W., F., at 9, Professor Siebert; Sec. II: M., W., F., at 1, Mr. McNeal.

4. **Political and Constitutional History of England.** This course is designed to give the student an intimate knowledge of the development of the English constitution from its Germanic beginnings, and an acquaintance with the literature of the subject. It will be found serviceable for those intending to do special work in American History or Political Science, and for those who expect to study law. It must be preceded by course 14 or courses 1, 2, 3. Three times a week, three terms, M., W., F., at 8. Professor Siebert.

5. **Political and Social History of Greece to the Roman Conquest.** A short course introduced by a few lectures on ancient oriental history. Lectures, text-book and assigned readings. Botsford's *History of Greece*. Twice a week, first term. Tu., Th., at 9. Mr. McNeal.

Given biennially. Omitted in 1903-1904.

6. **Roman History and Institutions to the End of the Republic.** This course, together with Course 5, is intended especially to meet the needs of students taking Latin and Greek, and those preparing

to teach ancient history in the schools. Lectures, recitations and special reports. Tu., Th., at 9. Mr. McNeal.]
Given biennially. Omitted in 1903-1904.

7. **Period of the Protestant Reformation.** Open to those who have had courses 1, 2 and 3. This is an advanced course, and deals with reformational movements from the time of the death of Dante (1321), to the Council of Trent (1562). Lectures, collateral reading and investigations. Three times a week, first term. M., W., F., at 2. Professor Siebert.
Given biennially. Omitted in 1904-1905.
8. **The French Revolutionary and Napoleonic Periods, 1789-1815.** Open to students who have had courses 1, 2, and 3. An intensive study of the causes and effects of the French Revolution, and of Napoleon's struggle with Europe. Lectures, collateral reading and special reports. Three times a week, second term. M., W., F., at 2. Professor Siebert.
Given biennially. Omitted in 1904-1905.
9. **History of Europe in the Nineteenth Century.** Open to students who have had courses 1, 2, and 3. Lectures, assigned readings and topical reports. Three times a week, third term. M., W., F., at 2. Professor Siebert.
Given biennially. Omitted in 1904-1905.
10. **History of European Colonies.** Open to students who have had courses 1, 2 and 3. A study of the colonial enterprises of Portugal, Spain, England, the Netherlands, France and Germany. This course begins with the age of geographical discoveries and traces the evolution of colonies to the present time. Lectures, assigned readings and investigations. Three times a week, first and second term. M., Tu., F., at 10. Professor Siebert.
11. **The Eastern Question.** An advanced course treating of the relations of European powers with Turkey and Russia by means of lectures, topical reports and required readings. Open to students who have had courses 1, 2 and 3. Course 9 gives a special preparation for this course. Three times a week, third term. M., Tu., F., at 10. Professor Siebert.
12. **Constitutional History of France.** From the ninth to the middle of the eighteenth century. Origin and development of the feudal system in France, growth of the French monarchy, French institutions before the Revolution. Lectures, required reading, reports. Twice a week, three terms. Students must be able to read French. Courses 1, 2, 3 prerequisite. Tu. and Th., at 9. Mr. McNeal.
Given biennially. Omitted in 1904-1905.
14. **Narrative History of England.** General course in the History of England intended especially for those wishing to take up course 4 in this department, and for those intending to work in American history or English literature. Lectures, text-book and reports, Three times a week, three terms. M., W., F., at 8. Mr. McNeal.

15. **History of North-Eastern Europe.** This course will deal with Denmark, Sweden, Poland and Russia from the fifteenth century. Courses 1, 2 and 3 are prerequisite. Lectures and reports. First and second terms, Tu. and Th., at 9. Professor Siebert. Given biennially. Omitted in 1903-1904.
16. **Europe and the Asiatic Question.** Origin and development of the interests of the various European states in the Far-East. Lectures and reports. Courses 1, 2 and 3 are prerequisite. Third term. Tu. and Th., at 9. Professor Siebert. Given biennially. Omitted in 1903-1904.
18. **History of Mediaeval Civilization.** A study of institutions and customs in Western Europe during the Middle Ages; primitive Germanic conditions, social and economic features of the Frankish Kingdom and Empire, monasticism, origins of feudalism, etc. Lectures, readings, reports. Three times a week, three terms. M., W., F., at 3. Courses 1, 2, 3 prerequisite. Mr. McNeal. Given biennially. Omitted in 1904-1905.
20. **Historical Method and Documentary Sources of the Middle Ages.** An outline of the principles of historical research and criticism; the bibliography of history; a study of mediaeval sources, German tribal laws, capitularies, charters, formulae, etc. One two hour session, once a week, three terms. Courses 1, 2, 3, prerequisite. Tu., 3-5. Mr. McNeal.
21. **Investigations of Special Topics in Modern European History.** Open to those students who are able to satisfy the instructor as to their fitness to pursue the course. Th., 3-5. Professor Siebert.

French

(See Romance Languages and Literatures.)

Geology

(Orton Hall, Rooms 1, 4, 5, 7, and 13.)

PROFESSOR PROSSER, PROFESSOR BOWNOCKER.

The University is able to present unusual advantages for the study of Geology. By an act of the Legislature it has been put in possession of all the collections made by the Geological Survey, and these collections have been supplemented by valuable additions of fossils and minerals from various sources. The State collection embraces a very complete representation of every geological formation shown in Ohio. The department offers exceptionally good opportunities for work in the stratigraphical and petrographical laboratories. ORTON HALL is designed for the permanent accommodation of the large geological collection of the University and for work and instruction in the department of Geology. The central and rear portion is occupied by the geological and paleontological museums and in the basement is the museum of economic geology.

The stratigraphical and petrographical laboratories are located on the second floor.

The catalogue of the museum contains more than 11,000 entries; but as only one number is as a rule given to a fossil or a mineral species, the individual specimens make an aggregate list of many thousands in addition to the catalogue list, and probably double this list.

6. **Economic Geology.** Lectures and assigned reading. The nature of ores, their classification and origin. The metals of the United States, their distribution, abundance, modes of occurrence and origin. The non-metals, coal, oil, gas, clay, lime, cement, building stone, etc. In the discussion of the non-metals emphasis will be laid on the products of Ohio. Prerequisites, courses 11 and 12, M., W., F., at 11. Professor Bownocker.
11. **Inorganic Geology.** Including lithological, dynamical, and structural geology. Lectures, recitations, laboratory work, and field exercises. The lectures are illustrated by lantern views, maps, models and specimens. Three times a week, first term. M., W., F., at 9. Open to all. Professor Bownocker.
12. **Historical Geology.** A general course in paleontological and stratigraphical geology, with laboratory study of Dana's Manual of Geology, the Ohio Geological Reports and identification of characteristic fossils. The development of organisms and the classification and distribution of the geological formations are considered. Lectures, recitations and laboratory work. The lectures are illustrated by lantern views, maps and specimens. Three times a week, second term. Prerequisite, course 11. M., W., F., at 9. Last half of term, laboratory, F., 8-10. Professor Prosser.
13. **Field Geology.** Field and laboratory study of the geological formations readily accessible from Columbus. This course is intended to acquaint the student with the ordinary methods of field investigation, and involves the collection and identification of specimens, the measurement of geological sections and the preparation of a report describing the region studied. Three hours credit, third term. Prerequisite, courses 11 and 12. Field trips Saturdays. Laboratory open M., Tu., W., Th., and F., 8-12 and 1-4. Professor Prosser.
14. **Paleontology.** Careful training in systematic classification which may be used in the philosophical study of the development of plant and animal life, or as a means of becoming acquainted with the fauna and flora that characterize the various geological formations. At first the student devotes some time to conchology, studying recent shells in which the characters used in classification are well preserved, and after this preliminary work, fossils are studied. Fossils afford the most reliable data for identifying and correlating geologic formations, and the critical study of faunas is a field especially adapted to independent research. Laboratory, museum and field work. Two to five hours credit. Three terms. This course may be undertaken at the beginning of the second or

the third term. Prerequisite or accompanying courses, 11 and 12. Laboratory open M., T., W., Th., and Fri., 9-12 and 1-4. Professor Prosser.

15. **Areal Geology.** Instruction in the methods of preparing geological maps and reports. The student compiles from a geological report a map with sections showing geologic structure, and later traces the outcrops and prepares a geological map of some region. Two to five hours credit. First and third terms. Prerequisite courses 11, 12, 13 and 14. Field work Saturdays, laboratory open M., T., W., Th. and F., 9-12 and 1-4. Professor Prosser.
16. **Advanced Historical Geology.** Work in paleontology and stratigraphical Geology for students who have had courses 11, 12, 13 and 14. A written report is required which shall review the literature of the work undertaken and in addition show some scientific merit in the presentation of the results of the original investigation. Three to five hours credit. Three terms. Field work to be arranged with individual students, laboratory open M., T., W., Th., and F., 9-12 and 1-4. Professor Prosser.
17. **Physiography.** Introductory course. Study of the physiographic features of the earth's surface with special reference to North America; the agencies which produced these, and changes now in progress. The ocean and the atmosphere. The lectures illustrated by lantern views and maps. Three terms. M., W., F., at 1. Professor Bownocker.
18. **Geographic Geology.** The origin, development and destruction of topographic forms. Rivers, lakes, oceans, ice, and winds as agents modifying the surface of the earth. Lectures, map work, field excursions. Three times a week, third term. Prerequisite, course 11 or 17. Tu., Th., 9-10. Professor Bownocker.
19. **Petrography.** Laboratory and lectures. Optical crystallography, with practical determination of rock-forming minerals, macroscopically and microscopically. Study of the igneous rocks in the hand specimen and thin section. Twice a week, three terms. The Sturtz rock collection and Voight Hockgesang thin sections of typical minerals and rocks will be studied. Books of reference: — Mitchel Levy — Les Minneaux des Roches; Rosenbusch—Mikroskopische Physiographie der Petrographisch Wichtigen Mineralien, 3d ed.; Mikroskopische Physiographie der Massigen Gesteine, 2d ed.; Teall's British Petrography; Spottiswoode's Polarization of Light. Prerequisites, Chemistry 1, Metallurgy 2, (Mineralogy and crystallography) elementary mineralogy. Five days, 1-4. Professor Bownocker.
20. **Research Work.** Field, laboratory and library study in Inorganic or Historical Geology. Outline of work and time to be arranged with individual students. Three to five hours credit. Three terms. Preceding courses in Inorganic or Historical Geology are prerequisite. Professor Bownocker or Professor Prosser.

Germanic Languages and Literatures

(University Hall, Rooms 30 and 32.)

PROFESSOR EGGERS, ASSOCIATE PROFESSOR MESLOH, MR. EISENLOHR,
MISS BARROWS.

The department of Germanic Languages and Literatures is in charge of the instruction in German and some of the related languages and literatures. Courses in general philology are also offered by this department. The object of the instruction in this department is a four-fold one: First, to enable the student to read German scientific works; second, to make the student familiar with the best in Germanic literatures; third, to acquaint the student with the laws governing the growth and development of languages, special attention being given to Germanic languages; the fourth object, combining in a measure the preceding three, is to prepare instructors both for secondary and higher institutions of learning.

As to the first, ample facilities for drill in science reading are given. The instruction begins with some general science reader, but subsequently the student is asked to read such books or periodicals as may be helpful in the special branch of science chosen by him. As to the second, a large number of courses are offered for the study of literature, in which, after a general survey of the whole field, special attention is given to the different periods, and the most prominent writers. No student of German literature if qualified should fail to take *Faust I and II*. As to the third object, there are a number of courses offered in this department such as the courses in Old High German, Gothic, Old Norse, History of the German Language, Comparative Grammar, Sanskrit, etc., which are to familiarize students with the laws of development and growth of Germanic languages specifically, and also of languages in general. The fourth object of the instruction in this department is to meet the ever-growing demand upon this University for well-prepared instructors for secondary and higher institutions of learning. The department of Germanic Languages and Literatures is in a position to offer a thorough preparation for such positions. Students looking forward to higher academic positions should possess of the ancient languages at least a fair knowledge of Latin.

In all the courses, except those in linguistics, considerable time is given to written and colloquial exercises. The work in composition is carried on exclusively in the German language. Some courses are specially designed to give students additional drill in conversational German. These courses are primarily intended for teachers, but they are also found advantageous for students who do not intend to make teaching a profession.

The University library offers good facilities for the work in this department. In addition the department is supplied with a large number of illustrated books which are used to give the student a vivid picture of German life, customs, etc. A number of lectures illustrated by lantern slides are given.

1. **Elementary German.** Four times a week, three terms. This course is intended not only to lay a good foundation for the further study

of German but also to help in forming proper habits of study. Sec. I: M., Tu., Th., F., at 10; Associate Professor Mesloh. Sec. II: M., Tu., Th., F., at 10; Mr. Eisenlohr. Sec. III: M., T., Th., F., at 11; Mr. Eisenlohr. Sec. IV: Tu., W., Th., F., at 2; Mr. Eisenlohr. Sec. V: Tu., W., Th., F., at 3; Miss Barrows.

2. **Science Reading.** Two or four times a week, three terms. This course includes a topical review of the grammar, a study of stem groups for the purpose of developing and increasing the student's vocabulary, and the reading of Gore's Science Reader, Walther's Meereskunde, Trabert's Meteorologie and some book or books dealing with the specialty chosen by the student. Sec. I: M., T., W., Th., at 8; Mr. Eisenlohr. Sec. II: M., Tu., W., Th., at 9; Associate Professor Mesloh.
4. **Intermediate German.** Four times a week, three terms. Review of the Grammar; rapid reading of a number of novels; some lectures upon outlines of German Literature; Composition. Sec. I: M., Tu., Th., F., at 10; Professor Eggers. Sec. II: M., Tu., Th., F., at 11; Associate Professor Mesloh.
- *9. **Classical Drama and Prose.** Three times a week, three terms. First term. After a rapid review of the development of the German drama from earliest times, special attention is given to the dramas of Lessing, Schiller, Goethe. In the second and third terms the development of German prose is studied, with special attention to the prose of Luther, Lessing, Goethe, Heine; Composition. Must be preceded by Courses 1 and 4. M., W., F., at 2. Professor Eggers.
10. **Modern Prose and Drama.** Three times a week, three terms. First term: Some of the great prose-writers of Germany and of other Germanic countries will be studied. The second and third terms will be devoted to the study of the modern drama of Germany and other Germanic countries; Composition. Must be preceded by Courses 1 and 4. M., W., F., at 2. Professor Eggers.
11. **Faust I and II.** Twice a week, three terms. The consent of the professor in charge will have to be secured. Students are expected to take both parts. Must be preceded by at least courses 1 and 4. T., Th., at 11. Professor Eggers.
12. **Colloquial Exercises.** Once or twice a week, three terms. This course is designed especially for teachers. Some lectures upon methods of teaching German will be given toward the close of the course. M., F., at 11. Professor Eggers.
13. **Deutscher Aufsatz.** Once a week, three terms. This course is designed specially for teachers. Original compositions will be written. Th., at 2. Professor Eggers.
14. **Gothic.** Twice a week, first term. This course is purely linguistic and aims to lay a good foundation for subsequent work in language. The relation between Gothic and later dialects is em-

* Not given in 1903-1904.

- phasized. Wright's Gothic Primer will be used. W., F., at 8 Associate Professor Mesloh.
15. **Old High German.** Three times a week, second term. A natural sequence to course 14. The attention of the student is not only directed to the archaic forms and syntax but also to the best literary monuments. Wright's Old High German Primer. M., W., F., at 8. Associate Professor Mesloh.
 16. **Middle High German.** Three times a week, third term. Wright's Middle High German Primer. The poems of the Minnesingers, especially those of Walther von der Vogelweide, and one of the mediæval epics will be studied, principally from a literary standpoint. M., W., F., at 8. Professor Eggers.
 - *17. **Old Norse.** Twice a week, first term. Kahle's *Altisländisches Elementarbuch*. This course is intended as an introduction to the literature as well as the language. Some prose saga will be read. M., W., at 8. Associate Professor Mesloh.
 - *18. **History of the German Language.** Twice a week, second term. Behaghel's *Die Deutsche Sprache*. This course aims to give a sound knowledge of the historical development of the German language. W., F., at 8. Associate Professor Mesloh.
 - *19. **Comparative Grammar.** Twice a week, third term. Meringer's *Indogermanische Sprachwissenschaft*. Henri's *Comparative Grammar of English and German*. After a general survey of the whole field the relation between English and German is carefully studied. W. F., at 8. Associate Professor Mesloh.
 20. **Sanskrit.** Twice a week, three terms. Perry's Primer; Lanman's Reader. Lectures introductory to the study of Indo-Germanic philology. T., Th., at 8. Associate Professor Mesloh.
 21. **Phonetics.** Once a week, first term. A series of lectures discusses the nature of the various sounds of language, their production and interrelation. A knowledge of German is not essential for this course. Associate Professor Mesloh. M., at 8.
 22. **Deutsche Kulturgeschichte.** Once a week, second and third terms. Tu., at 2. Professor Eggers.
 23. **Introduction to the Veda.** Three times a week, first term. Lanman's Reader. Hillebrandt's *Chrestomathy*. M., W., F., at 1. Associate Professor Mesloh.
 24. **Elements of Pali.** Three times a week, second term. Frankfurter's *Pali Handbook*. Reading of selections from the *Jatakas* and the *Dhammapadam*. This course must be preceded by Sanskrit 20. M., W., F., at 1. Associate Professor Mesloh.
 25. **Avestan.** Three times a week, third term. Jackson's *Avesta Grammar and Reader*. Spiegel's *Altpersische Keilinschriften*. This course must be preceded by Sanskrit 20. M., W., F., at 1. Associate Professor Mesloh.
 26. **Seminary A: Literary Criticism.** Two hours a week at one meeting. Hours to be arranged. Professor Eggers.

* Not given in 1903-1904.

27. **German Philosophy.** Two times a week, three terms. Selections from the chief German philosophers will be read in the original. Open only to advanced students in philosophy. Professor Eggers.
28. **German Ballads and Lyrics.** Two hours a week. With special attention to the Volkslied. Professor Eggers.
- *29. **Seminary B.** Two hours a week. The subject for the year 1904-1905 will be Gothic. Professor Mesloh.

Greek Language and Literature

(University Hall, Rooms 37, 29 and 28.)

PROFESSOR SMITH, ASSOCIATE PROFESSOR HODGMAN, ASSOCIATE PROFESSOR ELDEN.

First-year students coming to the University without preparation in Greek and desiring to study that language will enter Greek 1. For admission to course 7 the student must have passed course 1 or must be prepared at the time of admission as follows: Grammar: (Goodwin or Hadley-Allen) and Prose Composition; or White's First Greek Book entire. Reading: The first three books of Xenophon's Anabasis.

Courses 7-12 cover the work of two college years, and the consecutive numbering indicates the order in which the student is expected to take that work. The later courses, beginning with 13, are not necessarily in sequence, and are open to all who can show that they are qualified to pursue them with profit. This will be understood to mean the accomplishment of courses 7-12 or an equivalent.

Courses 22 and 23 (on the history of ancient art) do not presuppose any knowledge of Latin or Greek; but are especially recommended to those who have studied one or both of these languages.

1. **Elementary Greek.** M., Tu., Th., F., at 11. Associate Professor Elden. This course runs through three terms, and includes the work in White's First Greek Book, with the reading of three books of the Anabasis. It is intended to meet the wants of those who lack the preparation for the advanced courses, or those who wish, without pursuing the subject farther, to gain some acquaintance with the elements of Greek.
7. **Xenophon: The Memorabilia of Socrates with Exercises in Greek Prose.** First term. M., Tu., Th., F., at 11. Professor Smith.
8. **Herodotus, Selections: with Studies in Greek History.** Second term. M., Tu., Th., F., at 11. Professor Smith.
9. **Homer's Odyssey, Selections from Books I-IX.** Third term. M., Tu., Th., F., at 11. Professor Smith.
10. **Lysias; Eight Orations; with Studies in Attic Procedure.** First term. Tu., Th., F., at 10. Professor Smith.
11. **Plato: Apology, Crito and Phaedo (narrative portions).** Second term. Tu., Th., F., at 10. Professor Smith.
12. **Homer's Iliad.** Rapid reading of the first six books, with literary discussion of the Homeric poems. Only those who have taken

* Not given in 1903-1904.

Course 9 or its equivalent, will be admitted to this course. Third term. Tu., Th., F., at 10. Professor Smith.

13. **Thucydides: Book I or Book VII.** First term. M., W., F., at 3. Associate Professor Hodgman.
14. **Demosthenes: Olynthiacs and Philippics.** Second term. M., W., F., at 3. Associate Professor Hodgman.
15. **Greek Lyric Poets, or Theocritus.** Third term. M., W., F., at 3. Associate Professor Hodgman.
- *16. **Attic Drama:** Lectures and discussions. First term. Tu., Th., at 3. Associate Professor Hodgman.
- *17. **Euripides:** Two plays. Second term. Tu., Th., at 3. Associate Professor Hodgman.
- *18. **Aeschylus; the Agamemnon.** Third term. Tu., Th., at 3. Associate Professor Hodgman.
19. **Epic Poetry.** Lectures, with reading of Hesiod's Works and Days. First term. W., F., at 2. Professor Smith.
20. **Greek Comedy.** Lectures, with reading of the Birds of Aristophanes. Second term. W., F., at 2. Professor Smith.
21. **Post-Classical Greek.** Lucian's Timon and Dion, Chrysostom's Hunters of Euboea. Third term. W., F., at 2. Professor Smith.
22. **Ancient Art.** Lectures on Architecture. First term. Twice a week. Professor Smith.
23. **Ancient Art.** Lectures on Sculpture. Second term. Twice a week. Professor Smith.
24. **Private Life of the Greeks.** Lectures. Third term. Twice a week. Professor Smith.
25. **Greek Philosophy.** Lectures; with reading of Xenophon's Memorabilia (other portions than those in course 7). First term. T., Th., at 2. Professor Smith.
26. **Plato: Gorgias or Protagoras.** Second term. Tu., Th., at 2. Professor Smith.
27. **Studies in New Testament Greek.** Third term. Tu., Th., at 2. Professor Smith.
28. **Historical Grammar.** Lectures on the principles that governs the development of the language. Once a week through three terms. Th., at 3. Associate Professor Hodgman.

History

(See American and European History.)

Italian

(See Romance Languages.)

Latin Language and Literature

(University Hall, Rooms 17, 28, 29, 37, 54 and 55.)

PROFESSOR DERBY, ASSOCIATE PROFESSOR HODGMAN, ASSOCIATE PROFESSOR ELDEN.

At least five units of preparatory Latin are required for admission

* Not offered in 1903-1904.

to this department. Starred courses are not given in 1903-1904. Courses 1, 2 and 3 must precede all elective work in Latin, and courses 4, 5 and 6 must precede or accompany other elective courses in this department.

1. **Cicero**: De Senectute and De Amicitia, or Selected Letters. Four times a week. First term. Sec. I: M., Tu., Th., F., at 10; Associate Professor Elden. Sec. II: M., Tu., Th., F., at 11; Professor Derby. Sec. III: Tu., W., Th., F., at 2. Associate Professor Hodgman.
2. **Livy**: Book 1, 2, 21, or 22. Four times a week. Second term. Sec. I: M., Tu., Th., F., at 10; Associate Professor Elden. Sec. II: M., Tu., Th., F., at 11; Professor Derby. Sec. III: Tu., W., Th., F., at 2; Associate Professor Hodgman.
3. **Horace**: Odes. Four times a week. Third term. Sec. I: M., Tu., Th., F., at 10; Associate Professor Elden. Sec. II: M., Tu., Th., F., at 11; Professor Derby. Sec. III: Tu., W., Th., F., at 2; Associate Professor Hodgman.

The aim of courses 1, 2 and 3 is to give the student practice, at first, in pronunciation, in exact and idiomatic translation, together with a ready and intelligent command of the common constructions in Latin. Later, more attention is paid to the order of words, to the interpretation of the text and, in the third term, to mythology and prosody.

4. **Pliny**: Selected Letters. Three times a week. First term. Sec. I: Tu., Th., F., at 2; Professor Derby. Sec. II: Tu., Th., F., at 11; Associate Professor Hodgman.
5. **Tacitus**: Germania and Agricola or Catullus. Three times a week. Second term. Sec. I: Tu., Th., F., at 2; Professor Derby. Sec. II: Tu., Th., F., at 11; Associate Professor Hodgman.
6. **Terence**: Phormio; Plautus, Trinummus or Captivi. Three times a week. Third term. Sec. I: Tu., Th., F., at 2; Professor Derby. Sec. II: Tu., Th., F., at 11; Associate Professor Hodgman.

The instruction in courses 4, 5 and 6, without neglecting the lines of the preceding work, pays more attention to the style and literary merit of the authors studied, and to the subject-matter as a contemporary record of Roman thought and life.

- *7. **Tacitus**: Historiæ or Annales. Three times a week. First term.
- *8. **Juvenal**. Satires. Three times a week. Second term.
- *8 **Martial**: Selected Epigrams. Three times a week. Third term.
- *10. **Plautus**. Menaechmi and Rudens. Three times a week. First term. Tu., Th., F., at 10. Associate Professor Hodgman.
- *11. **Cicero**. De Finibus or De Officiis. Three times a week. Second term. Tu., Th., F., at 10. Associate Professor Hodgman.
- *12. **Seneca**. Medea, De Vita Beata, De Providentia, De Tranquillitate Animi. Three times a week. Third term. Tu., Th., F., at 10. Associate Professor Hodgman.
13. **Cicero**. De Natura Deorum. Three times a week. First term. M., W., F., at 9. Associate Professor Elden.

* Not given in 1903-4.

14. **Lucretius.** De Rerum Natura. Three times a week. Second term. M., W., F., at 9. Associate Professor Elden.

15. **Horace:** Satires. Three times a week. Third term. M., W., F., at 9. Associate Professor Elden.

In courses 13-15, in addition to the careful consideration of the language and style of the works read and of their value as literary master-pieces, especial attention will be given to the philosophical views of the Romans.

*16. **Horace:** Epistles. Three times a week. First term. M., W., F., at 3. Professor Derby.

*17. **Suetonius:** Divus Julius and Divus Augustus, or Tacitus, Annals. Three times a week. Second term. M., W., F., at 3. Professor Derby.

*17a. **Late Latin.** Three times a week. Third term. M., W., F., at 3. Professor Derby.

Courses 7-17 and 27 are intended to give facility in translation, an acquaintance with several important Latin authors, and that familiarity with the vocabulary, idioms, grammar and literature of the language which comes only from extensive reading.

18. **Teachers' Course.** Three hours credit. M., W., at 8. Associate Professor Elden. This course is designed especially for students who intend to teach Latin and is open only to those who have completed courses 1-6 inclusive. First term: Cæsar; lectures, private reading, practical exercises in syntax, assigned topics in military antiquities. Second term: Cicero; lectures on Roman oratory and style, rapid reading of selected orations, assigned topics on Roman life and political antiquities. Third term; Vergil; lectures, studies in versification with especial reference to the diction and hexameter of Vergil, interpretation of selected portions of the text.

19. **Latin Prose Composition.** Twice a week. Three terms. M., W., at 8. Professor Derby.

*20. **Antiquities.** Twice a week. Three terms. Tu., Th., at 8. Professor Derby. Roman private life will be studied during the first term; attention will be given to such topics as the family, education, dress, food, the house, trade and industries, books, travel, etc. The second and third terms will be devoted to political and legal antiquities, including finance and provincial administration.

*21. **Latin Literature.** Twice a week. First and second terms.

*22. **Latin Philology.** Twice a week. Third term.

23. **Historical Latin Grammar.** Sounds and Inflections. Twice a week. Three terms. Tu., Th., at 10. Associate Professor Hodgman.

This course treats in lectures of the growth of Latin sounds and inflections. There will be collateral reading of inscriptions and from Quintilian.

*24. **Advanced Latin Writing.** Twice a week. Three terms.

* Not given in 1903-1904.

25. **Pro-Seminary.** Three hours credit. M., W., at 2. Professor Derby. Principles of textual criticism and methods of independent research. The work of 1903-4 will consist of the textual and exegetical study of (a portion of the Jugurtha of Sallust), combined with the more rapid reading of other portions of the author, and will be supplemented by lectures upon the history and development of Roman History. Special topics will be assigned to the student for investigation and report. This course should be preceded or accompanied by course 18. The ability to use German text-books will be required of students in this course after the year 1903-4.
26. **Pharmaceutical Latin.** Four times a week. Three terms.
27. **Ovid: Fasti.** A large amount will be read of Ovid's poetical calendar, with its account of the social and religious observances connected with the Roman holidays. Once a week. Three terms. F., at 10. Associate Professor Hodgman.
28. **Historical Latin Grammar.** Syntax, lectures on problems connected with the origin and development of certain constructions in Latin Syntax; a treatment along historical lines of the syntactic uses of the cases, moods and tenses. Once a week. Three terms. F., at 3. Associate Professor Elden.

Law

(Paige Hall.)

PROFESSORS RANDALL, PAGE, MR. RIGHTMIRE.

(Of the courses offered in the College of Law, the following are open to the students of the College of Arts, Philosophy and Science. A tuition fee is charged for courses in the College of Law.)

Elementary Law. First Semester. Five hours. Daily, at 1. 2 or 3. Mr. Rightmire.

Contracts. Second Semester. Four hours. M., Tu., 1-3, and F., 1-2. Professor Page.

Negotiable Instruments. First Semester. Five hours. Open only to those who have had Elementary Law and Contracts. Daily at 1. Professor Randall.

Mathematics

(University Hall, Rooms 39, 41, 43 and 45.)

PROFESSOR BOHANNAN, ASSOCIATE PROFESSOR MCCOARD, ASSOCIATE PROFESSOR BOYD, ASSISTANT PROFESSOR ARNOLD, ASSISTANT PROFESSOR SWARTZEL*, ASSISTANT PROFESSOR KUHN, ASSISTANT PROFESSOR CODDINGTON, MR. RASOR.

Students intending to make mathematics a specialty, should elect in the first year courses 31, 32, 33, 24; in the second year, courses 41, 42, 43; in the third year, courses 51, 52, 53, together with five hours a week from course 25; in the fourth year, ten hours a week from course 25.

* Absent on leave.

Such students should also make sure to acquire a reading knowledge of both French and German by the beginning of the third year.

Students intending to content themselves with less mathematics will take in the first year courses 21, 22, 23, and in the second year course 28.

The mathematical library of the university is one of the most extensive in the west, having sets of the principal mathematical journals of England, France, Germany, America, together with an extensive list of treatises in English, French, German, Italian, on the chief mathematical topics. It is a working library of high merit and presents exceptional opportunities for advanced work.

21. **College Algebra.** Taylor's College Algebra. Three times a week, first term. Open to students having credit for the second unit of entrance algebra. (Students not able to present this second unit on entrance may make it up in college, but without college credit. Each term a class will be organized for this purpose.) Course 21 is given on M., W., F., at 9, 11, and 1. Professor Bohannon, Associate Professor McCoard, Assistant Professors Arnold, Kuhn, Mr. Rasor, Mr. Skimming.
22. **Plane Trigonometry.** Three times a week, second term. Open to students having credit for the first unit of entrance algebra and the first unit of entrance geometry. M., W., F., at 9, 11, and 1. Professor Bohannon, Associate Professor McCoard, Assistant Professors Arnold, Kuhn, Mr. Rasor, Mr. Skimming.
23. **Elementary Course in Analytical Geometry and Calculus.** Three times a week third term. Open to students having credit for entrance algebra and geometry and for course 22. (Students not prepared in the second unit of entrance geometry may make up the deficiency in a special class during the second term, but without college credit. See also note to course 21.) M., W., F., at 9, 11, 1. Professor Bohannon, Associate Professor McCoard, Assistant Professors Arnold, Coddington, Kuhn, Mr. Rasor, Mr. Skimming.
24. **Problems on all past Work.** Once a week for the year. Peterson's Problems in Geometry, with selected problems in algebra, trigonometry, analytical geometry and calculus. This course may accompany courses 21, 22, 23, or courses 31, 32, 33. F., at 10. Professor Bohannon, Assistant Professor Kuhn.
28. **Analytical Geometry and Calculus.** Three times a week for the year. Open to students having credit for courses 21, 22, 23, or courses 31, 32, 33. Hours to be arranged. Professor Bohannon, Associate Professor McCoard, Assistant Professors Arnold, Kuhn, Mr. Rasor.
31. **College Algebra.** Five times a week first term. Taylor's College Algebra. Open to students having credit for entrance algebra.

Twelve sections meeting daily at 8, 9, 11, 1 and 2. Professor Bohannan, Associate Professor McCoard, Assistant Professors Arnold, Coddington, Kuhn, Mr. Rasor.

32. **Plane Trigonometry.** Five times a week, second term. Open on a credit for entrance algebra and for the first unit of entrance geometry. Twelve sections meeting daily at 8, 9, 11, 1 and 2. Professor Bohannan, Associate Professor McCoard, Assistant Professors Arnold, Coddington, Kuhn, Mr. Rasor.
33. **Analytical Geometry.** Five times a week, third term. Open on a credit for entrance algebra, the first unit of entrance geometry and for course 22 or 32. Twelve sections meeting daily at 8, 9, 11, 1 and 2. Professor Bohannan, Associate Professor McCoard, Assistant Professors Arnold, Coddington, Kuhn, Mr. Rasor.
41. **Calculus.** Five times a week first term. Open on a credit for courses 21, 22, 23, or for courses 31, 32, 33. Five sections meeting at 8, 11 and 1. Professor Bohannan, Associate Professors McCoard and Boyd, Assistant Professors Arnold, Coddington, Kuhn.
42. **Continuation of course 41** Second term, five times a week, 8, 11, 1.
43. **Continuation of course 42.** Third term. Five times a week. 8, 11, 1.
71. **Mechanics.** First term. Open on credit for courses 41, 42, 43. Daily at 8, 9, 11. Associate Professor Boyd, Assistant Professor Kuhn.
72. **Continuation of course 71.** Second term. Daily at 8, 9, 11.
73. **Continuation of course 72.** Third term. Daily at 8, 9, 11.
25. **Higher Mathematics.** From one to ten hours a week may be selected from the following courses:
- (a) Determinants.
 - (b) Modern Geometry. (Assistant Professor Kuhn.)
 - (c) Modern Higher Algebra.
 - (d) Advanced Analytical Geometry (Plane).
 - (e) Advanced Calculus.
 - (f) Space Analytics.
 - (g) Differential Equations.
 - (h) Theory of Equations.
 - (i) Higher Plane Curves.
 - (j) Groups.
 - (k) General Function Theory.
 - (l) Elliptic Functions.
 - (m) Potential Function. (Assistant Professor Swartzel.)
 - (n) Spherical Harmonics.
 - (o) Mathematical Electricity.
 - (p) Mathematical Optics.
 - (q) General Mathematical Physics.
 - (r) Higher Geodesy.
 - (s) Infinite Series and Products. (Assistant Professor Swartzel.)
 - (t) The Teaching of Elementary Mathematics. A course in methods of teaching elementary mathematics, designed especially for those preparing to teach in the secondary schools. The laboratory

plan will be carefully considered. Twice a week, third term. Tu., Th., at 2. Assistant Professor Kuhn.

Course 25(b) meets on Tu., Th., at 10. Three terms. Hours for all other courses to be arranged with the instructors. Professor Bohannan, Assistant Professor Swartzel, Assistant Professor Kuhn.

Mechanical Engineering

[Hayes Hall, Rooms 9 and 11.]

PROFESSOR MAGRUDER.

[Of the twenty-two courses offered in the Department of Mechanical Engineering, the following course is open to students of the College of Arts, Philosophy and Science.]

- 3.4 **Thermodynamics.** Lectures and recitations on the transmutations of heat and mechanical energies in steam, gas and air engines, and in air and ammonia compressors, together with a study of the tests of ideal and actual engines and of their indicator diagrams; the flow of gases through pipes and orifices. Five credit hours. Second term. Daily at 8. Open to students who have completed Physics 2, Calculus and Mechanics. (Mathematics, 41, 42, 43 and 71, 72, 73.)

Metallurgy and Mineralogy

[Chemical Hall, Office Room 5.]

PROFESSOR N. W. LORD.

[Of the nine courses offered in this department of Metallurgy and Mineralogy, the following are open to students of the College of Arts, Philosophy and Science.]

2. **Mineralogy.** Lectures. Three times a week. Third term. M., W., F., at 11. Professor Lord. Open only to those who have had mathematics 21, 22, 23, or equivalent, and chemistry 1.
3. **Determinative Mineralogy.** Laboratory course in practical determination of minerals by physical and chemical tests. Each student is furnished with a set of apparatus, and works under an instructor's inspection. Brush and Penfield's Determinative Mineralogy is used as a manual. Five times a week. Third term. Must be preceded by course 2. Daily 1 to 4. Professor Lord.
5. **Metallurgical Laboratory.** Lectures and laboratory work. Laboratory practice in the analysis of iron and steel, fuel and slags, and the assays of lead, copper and zinc ores by wet methods, using approved methods as practiced in technical laboratories of metallurgical works. Five laboratory periods a week. Three terms. W., Th., F., 1 to 4. Open only to those who have had physics 2 and two years of chemistry. Professor Lord.

Military Science and Tactics

[The Armory.]

CAPTAIN GEORGE L. CONVERSE, U. S. A.

The Military Department is open five days during each week of each term.

1. **Military Drill.** Four times a week from the opening of college till the Thanksgiving vacation; four times a week from Thanksgiving till April first; four times a week till the close of the school year. Required of all able-bodied male students during first and second years of their course.
2. **Tactics.** Lectures and recitations. Once a week. Second term.
3. **Art of War.** Lectures and recitations. Once a week. Second term.

Philosophy

[University Hall, Rooms 33, 49, 50, 51.]

PROFESSOR SCOTT, ASSISTANT PROFESSOR HAINES, DR. DAVIES.

The courses in this Department offer a wide range of philosophical study. The work may be begun either (1), with course 18, to be followed by course 19 or 20; or (2), with course 19 to be followed by course 18; or, (3), with course 22, to be followed by course 18 or 21.

For most students it will be best to begin the study of philosophy in the second academic year; but in exceptional cases permission may be given to begin it in the first year. After one year's work in the Department the student may elect along various lines. It is desirable, however, that all of the courses named above should be taken.

Courses additional to those here announced will be arranged for graduate students who contemplate advanced work in particular subjects.

The library of the University contains a well selected body of works in Philosophy and is receiving valuable additions. It includes complete sets of *The Journal of Speculative Philosophy*, *The Philosophical Review*, *The Psychological Review*, *The American Journal of Psychology*, *The International Journal of Ethics*, and the English review *Mind*. Besides the current numbers of these journals, the Library receives *Revue Philosophique*, *Zeitschrift für Psychologie und Physiologie der Sinnesorgane*, and the *Journal of Mental Science*.

The psychological laboratory occupies three rooms on the fourth floor of University Hall. The equipment consists of apparatus and other material for the purpose of demonstration in lecture courses, and for practice and research work. Students of any degree of preparation, either beginners who wish some knowledge of the elements of psychological method and results, or more mature students prepared for research work, will find the equipment adequate to their purposes.

UNDERGRADUATE COURSES

18. **General Psychology.** Three times a week. First and second terms.

Sec. I: M., W., F., at 11; Professor Scott. Sec. II: M., W., F., at 9; Assistant Professor Haines.

19. **Logic.** Three times a week. Third term. Sec. I: M., W., F., at 11; Professor Scott. Sec. II: M., W., F., at 9; Assistant Professor Haines.

Students who take rhetoric 3 during the same year should enter section II, in which course 19 will precede course 18.

20. **Ethics.** Three times a week. Third term. M., W., F., at 3. Professor Scott.

Those who take course 18 during the first two terms will have an option between courses 19 and 20 for the third term.

The instruction in these courses is given by text-book, lectures, and collateral reading.

21. **History of Modern Philosophy.** Three times a week. Second and third terms. M., W., F., at 8. Dr. Davies.

22. **History of Ancient and Mediaeval Philosophy.** Three times a week. First term. M., W., F., at 8. Dr. Davies.

These historical courses aim to present a comprehensive view of the field and to trace the historical development of philosophic thought during the modern period. One thesis will be required each term.

29. **Introduction to Experimental Psychology.** Three hours credit. Three terms. Tu., Th., 1 to 3. Lecture Th., at 1. Assistant Professor Haines.

This is a practice course intended to familiarize the student with the experimental method in psychology and at the same time bring him in touch with some of the more important results of recent psychological investigation. It is the natural preparation for the research work offered in course 30. But it offers a distinct service to those who do not intend to do further work in experimental psychology. It brings one to a first hand acquaintance with the standpoint of psychology as an empirical science; and constitutes a valuable course of training in introspection. The course must be preceded or accompanied by Philology 18 or Zoology 21. Titchener's Experimental Psychology will be used as a laboratory guide.

UNDERGRADUATE AND GRADUATE COURSES

Most of the following courses are designed primarily for graduate students. But many of them may be pursued with profit by undergraduates who have had as much as two years of preparation, and a few of them by those who have had but a single year of previous work. For example, courses 23, 24, 25 may immediately follow courses 18 and 19 or courses 18 and 20, and the historical courses may be pursued by those who have successfully completed courses 22 and 21.

23. **Conspicuous of Philosophy.** Three times a week. First term. M., W., F., at 2. Professor Scott.

24. **Theory of Knowledge.** Three times a week. Second term. M., W., F., at 2. Professor Scott.
25. **Metaphysics.** Three times a week. Third term. M., W., F., at 2. Professor Scott.

Course 23 proposes a logical survey of the whole field of philosophy, determining the content, boundaries, and relations of its several departments, and investigating as far as time permits the conceptions and problems of each. It, with courses 24 and 25 must be preceded by courses 18 and 19 or courses 18 and 20, and it is desirable that they should be preceded or accompanied by courses 22 and 21. Külpe's *Introduction to Philosophy* or a similar book will be used as a text, with collateral use of Paulsen, Ladd and Stuckenbergr.

Courses 24 and 25 constitute a continuous study in fundamental philosophy, the former concerning itself primarily with the subjective, and the latter with the objective, aspects of the problems considered. In the former the main topics will be the nature and laws of thought, the categories and the relations of knowledge and belief, and of knowledge and reality. In the latter the special problem will be the nature of reality. Theses will be required during the year, not less than one for each term.

26. **Advanced Psychology.** Twice a week. Three terms. Tu., Th., at 9. Dr. Davies.

This course is intended for students who may wish to carry their study of systematic Psychology beyond the limits of the elementary course 18. The purpose is to give the student facility in handling psychological questions in dependence upon the results of psychological inquiry. It will include during the first two terms an analytic and genetic treatment of selected topics; and in the third term the more important psychological theories will be presented and an attempt made to formulate a general theory of mental life. Sully's *The Human Mind* will be used as the basis of study, but constant reference will be made to the works of James, Ladd, Wundt, Höffding and other representative psychologists, as well as to current literature.

27. **Philosophy of Science.** Twice a week. Three terms. Tu., Th., at 2. Professor Scott.

Course 27 has for its purpose to investigate the postulates and concepts of physical science. It will include such subjects as causality, mechanism and teleology, the existence and nature of matter and mind, the relation between them, and man's place in nature. Assigned readings, with reports and discussions, in Hume, Mill, Lotze, Spencer and others. One thesis will be required each term.

28. **Philosophy of Religion.** Twice a week. Three terms. Tu., Th., at 2. Professor Scott.

This course includes a study of the nature of religion, the foundations of religious belief, the relations of philosophy to religion, and religious problems, such as the existence and nature of God,

the problem of evil, and human immortality. Assigned readings, with reports and discussions in Spinoza, Kant, Fichte, Schleiermacher, Lotze, Pfeleiderer, Martineau and others. One thesis will be required each term. Courses 27 and 28 are alternative. Which of them will be given in 1903-04 will be decided after consultation with the class.

30. **Research Work in Experimental Psychology.** Twice a week. Three terms. Hours to be arranged. The psychological laboratory is open to students with suitable preparation to prosecute original investigations. The equipments in the laboratory and library, which are constantly increasing, make such work well worth the consideration of any student interested in the phenomena of mind. Philosophy 18 and 19 are required as preparation for this work. The arrangement of hours will be subject to the needs of the individual student. At least two hours must be taken. Assistant Professor Haines.

31. **Plato.** Twice a week. Three terms. Tu., Th., at 3. Dr. Davies.

32. **Aristotle.** Twice a week. Three terms. Tu., Th., at 3. Dr. Davies.

Only one of these two courses will be given each year, but it will be course 31 or 32, as the class may elect. The work will consist of readings from English translations of the author chosen and from commentaries and criticisms such as those of Zeller, Grote, Nettleship, and Pater on Plato, and Grote, Lewes, Grant and Davidson on Aristotle. Lectures on special problems suggested by the author will be given.

33. **Descartes and Spinoza.** Three times a week. First term. M., Th., F., at 10. Dr. Davies.

34. **Locke and Leibnitz.** Three times a week. Second term. M., Th., F., at 10. Dr. Davies.

35. **Berkeley, Hume and Reid.** Three times a week. Third term. M., Th., F., at 10. Dr. Davies.

36. **Kant, Fichte, Schelling and Hegel.** Three times a week. Three terms. Not offered in 1902-1903.

Courses 33, 34 and 35 constitute one year's work, and will alternate with course 36. The first three are preparatory to the last and will be given in 1902-1903. Assigned portions of the leading works of the thinkers named will be studied and discussed, and an attempt will be made to obtain a clear conception of the author's system as a whole, and of his position on particular important problems of philosophy. One thesis will be required each term.

37. **Later German Philosophy.** Three times a week. Three terms. M., Th., F., at 10. Assistant Professor Haines.

Following in historic order upon course 36, this course will deal with the German successors of Herbart and Hegel, and with Herman Lötze and Gustav Fechner. Greatest stress will be placed upon Lötze and his successors in Germany and America.

38. **Recent and Current Philosophy.** Three times a week. Three terms. M., Th., F., at 10. Assistant Professor Haines.

This course will be primarily concerned with the neo-Hegelian movement and its recent exponents in America and England. It will resolve itself into a study for present day idealism as set forth by its leading representatives in these countries. Three hours throughout the year. Only one of these courses (37 and 38) will be given in 1903-1904. Which one shall be given will be decided on consultation with the class.

39. **Psychological Seminary.** Two hours a week. Three terms. Time to be arranged. Assistant Professor Haines.

A research course for advanced students. Subject for the year, the Will, or, more broadly, the conative life. The first manifestations and development of volition in children, a comparative study of will, the relations of instinctive and voluntary reactions, aboulia and impulsive insanities, and the manifestations of will in crowd phenomena, are topics which will sufficiently indicate the line of work. Lectures, readings, discussions and theses.

40. **Ethical Seminary.** Two hours a week. Three terms. Hours to be arranged. Professor Scott.

This course will be devoted in 1903-1904 to the historical and critical study of one or more of the great problems of ethics. The work will consist of assigned readings, papers and discussions.

41. **Philosophical Seminary.** Two hours a week. Three terms. Hours to be arranged. Dr. Davies.

This course will undertake a systematic study of the problem of knowledge. The consideration of the nature and conditions of formal truth will constitute the first part of the work, and Hobhouse's *Theory of Knowledge* will be read. This will be followed by a study of the psychology of knowledge, and by an examination of the nature, grounds, limits, and validity of our knowledge of reality. Ladd's *Philosophy of Knowledge* indicates the character of the discussions in the second part, and will be read in connection. The method of study combines lectures with papers and discussions by the class.

42. **Comparative Psychology.** Two hours a week. Three terms. Tu., and Th., at 8. Assistant Professor Haines.

Omitted in 1903-04. Alternates with 46.

Some attention is given to the development of mind in the individual development of the human being. But the main interest centers in the parallel series,—the *evolution* of mind in the phylogenetic series. The various stages of mind development, judged by intelligent behavior, reflexive, instinctive and voluntary reactions; memory in animals, the so-called social instincts of bees and ants.

43. **Scientific Method.** Two hours. Tu. and Th., at 9. Assistant Professor Haines.

A study of the general methods of scientific procedure,—the general methods by which science grows. It is not a study of the special

methods of any individual science, though of course the illustrative material must be found in special fields. The more general features of all methods of science which have proved themselves efficient, are the subject matter of this course. Candidates for the work should have an intimate acquaintance with some one science.

44. **Advanced Ethics.** Two hours a week. Three terms. Tu., Th., at 3. Some of the subjects considered in philosophy 20 will receive a more thorough examination, and some of the leading theories of ethics will be studied. It is open only to students who have had courses 18, and 20. Professor Scott.
45. **Esthetics.** Two hours a week. Three terms. Hours to be arranged. This course will consider the subject of the beautiful from three points of view. 1, Historical: This will deal with the origin and development of art products in their dependence upon social and economic conditions; 2, Psychological: A consideration of the nature of the art impulse in its individual and social aspects; 3, Philosophical: A discussion of the relation that the Beautiful sustains toward the True and the Good with a view to the formulation of a theory of the beautiful as part of a philosophical system. Dr. Davies.
46. **Abnormal Psychology.** Two hours a week. Three terms. Tu., Th., at 8. Assistant Professor Haines.
A systematic study of the abnormal states of the human mind. The chief types of mental disease are passed in review, in order to obtain a definite picture of each, and also to obtain by the perspective thus afforded a clearer view of the normal mental processes. A psychological analysis of the various forms of insanity, for the student of psychology, education and medicine. Defendorf's Clinical Psychiatry will be used as text, supplemented by lectures; and the exceptional facilities which Columbus affords for such work will be utilized.

Physical Education

PROFESSOR LINHART, ASSOCIATE PROFESSOR BERRYMAN, MR. HUDDLESON.

(See page 10.)

Physics

(University Hall, Rooms 10, 14, 23 and 24.)

PROFESSOR THOMAS, PROFESSOR COLE, ASSISTANT PROFESSOR KESTER, MR. TUCKERMAN.

The department has an excellent equipment of apparatus, to which additions are constantly being made. The apparatus includes a large collection of pieces for illustration of the general lecture room work, but is principally chosen for accurate measurement in the laboratory. A set of standards of length, capacity and mass, sent under the act of Congress supplying such sets to the several agricultural colleges, is in the possession

of the department. The pieces are copies of the United States standards, made by the Coast Survey at Washington.

Among the principal pieces of apparatus are a dividing machine by Fauth & Co.; chronometers by Parkinson & Frodsham and by Negus, the latter a break-circuit; a chronograph by Fauth & Co.; a Hipp's chronoscope; cathetometers by Salleron and by the Geneva Society, the latter an exceptionally fine instrument; Regnault's apparatus for vapor tension, for expansion of gases and for specific heat; Melloni-Tyndall apparatus for radiant heat; standard thermometers by Baudin and others; Rutherford and Rowland, diffraction gratings; Rowland's spectrum photographs; spectroscopes by Brashear, Browning, Apps and others; Michelson interferometer; Duboscq's complete apparatus for projections in polarized light; lanterns for projections by the lime light and the arc light; a variety of Sound apparatus from Koenig; portable and quadrant electrometers; Kelvin galvanometers of high and low resistance; Weidemann, Kohlrausch and other galvanometers; standard resistance coils, with Cavendish laboratory and Reichsanstalt certificates; several sets of resistance coils and bridges; a Kew magnetometer; Kelvin standard balances; Weston ammeters and voltmeters; standards of self-induction; standard battery cells; potentiometers; oscillographs photometric standards and photometers; X-ray apparatus, etc.

Under the laws of Ohio, the professor of physics is *ex officio* State Sealer of Weights and Measures, and all of the standard weights, measures and balances received from the United States government are in the rooms of the department.

I. FOR UNDERGRADUATES.

2. **Mechanics and Heat, Electricity and Magnetism, Sound and Light.**

Lectures and experimental demonstrations. Three times a week. Two terms. General course in the theory of physics. For students of the exact sciences. Requirement, the mathematics of the first year. Class, together, M., W., 9 to 10; 8 sections quiz F., 9 to 10. Professor Thomas.

3. **Problems.** Recitations. Twice a week. Three terms. Practice in the solution of physics problems. May be taken by those taking physics 2. Sec. I: Tu., Th., 9-10; Sec. II: Tu., Th., 9-10. Professor Thomas, Assistant Professor Kester, Mr. Tuckerman.

4. **Electricity and Magnetism.** Lectures. Three times a week. First term. Theory of electricity and magnetism. M., Tu., Th., 10-11. Professor Thomas.

11. **General Physics.** One lecture. Two laboratory periods a week. Three terms. An elementary course for students who do not wish to do the more exact work of physics 2. The laboratory exercises are performed by the class in sections, each student or pair of students in a section having a set of the necessary apparatus, and all working on the same experiment at the same time. Sec. I: Tu., Th., 8 to 10; Sec. II: Th., F., 2-4. Sections I and II: W., at 11. Professor Cole.

12. **Laboratory.** Three to five times a week. Three terms. For those who have had, or who are taking physics 2. The work begins with

measurements of length, mass and time, and the study of instruments. Each student works alone. When sufficient skill in general manipulation has been acquired, the student is allowed much liberty in the selection of his work. The apparatus provided is sufficient to permit him to work in any desired branch of physics. M., Tu., W., 1-4. Professor Cole, Assistant Professor Kester.

II. FOR ADVANCED UNDERGRADUATES AND GRADUATES.

13. **Laboratory.** Three to five times a week. Three terms. Prerequisites, a year's work in General Physics of college grade and a course in the laboratory, (Physics 2 and 12). May be taken as a graduate minor. Professor Thomas, Professor Cole, Assistant Professor Kester.
14. **Theoretical Physics.** Three to five times a week. Three terms. For 1903-1904 the following subjects are offered:
- (a) Advanced Light, based upon Preston's "Theory of Light," with frequent reference to the original memoirs of Newton, Fresnel, Young, Fraunhofer, Michelson, Rowland, Stokes, Zeeman, etc.
 - (b) Radiation, with special reference to the electro-magnetic theory of light.
 - (c) Theory of Heat.
 - (d) Theoretical Physics. Christiansen. A course in Differential Equations or Analytical Mechanics is desirable as preparation.
 - (e) Evolution of Experimental Physics, with special reference to recent methods and results.
- Prerequisites for each of the above subjects, a year of College Physics (Physics 2) and Calculus. A laboratory course in Physics must precede or accompany. Professor Thomas, Professor Cole, Assistant Professor Kester.

III. FOR GRADUATES.

15. **Advanced Laboratory.** Three to five times a week. Three terms. Research work. Prerequisites, two years of laboratory work in Physics. Professor Thomas, Professor Cole.

Physiology

(See Anatomy and Physiology.)

Political Economy

(See Economics and Sociology.)

Political Science

(See American History and Political Science.)

Rhetoric and English Language

(University Hall, Rooms 38, 40, 42, 44, 55.)

PROFESSOR DENNEY, ASSISTANT PROFESSORS GRAVES, McKNIGHT,
DICKINSON.

RHETORIC AND COMPOSITION.

1. **Paragraph Writing and Analysis of Prose.** Twice a week through the year. The course includes two exercises weekly, in the writing

of short themes, the outlining and composition of essays and speeches, and the study of illustrative texts for structure and form. Text-book, Scott and Denney's Paragraph Writing. Sec. I: M., Th., at 8; Sec. IV: Tu., F., at 8; Sec. VII: Tu., Th., at 9; Sec. VIII: Tu., Th., at 10; Assistant Professor Graves. Sec. II: M., Th., at 8; Sec. V: Tu., F., at 8; Sec. IX: Tu., Th., at 10; Sec. XI: M., F., at 11. Assistant Professor McKnight. Sec. III: Tu., Th., at 9; Sec. VI: Tu., Th., at 10; Mr. Pennock. Sec. X: Tu., Th., at 9; Sec. XII: Tu., Th., at 1; Assistant Professor Dickinson.

2. **Expository Writing.** Twice a week, first term. In this course, practice is afforded in composing the various types of the essay, specimens of which are analyzed by the class. Text-book, Buck and Woodbridge's Expository Writing. Course 2 must be preceded by course 1. Sec. I. II. III, IV, M., or Tu., and Th., or F. at 10; Sec. V., Tu., Th., at 11; Sec. VI., W., F., at 1. Professor Denney.
3. **Brief Making and Written Argumentation.** Twice a week, second and third terms. The course includes a study of the principles of logical analysis, evidence, and argumentation; practice in writing briefs of noted speeches (Baker's Specimens); and in preparing original briefs with written arguments. Course 3 must be preceded by course 1. It is recommended that course 3 be preceded or accompanied by a course in logic. Sec. I., II., III., IV.: M., or Tu., and Th. or F., at 10; Sec. V: Tu., Th., at 11; Sec. VI: W., F., at 1. Professor Denney.
4. **Short Story Writing.** Three times a week. First term. Lectures on story construction with plot-analysis of selected narratives and a study of their plan, purpose and diction; practice in composition, with individual and class criticism. Course 4 must be preceded by course 2. M., W., F., at 9. Assistant Professor Graves.
6. **Poetics.** Three times a week. Second and third terms. Lectures on the history and theory of poetry; prescribed readings and reports; a study of English meters, with exercises in verse-writing to illustrate the principal forms. Text-book, Gummere's Handbook of Poetics, with Aristotle's Theory of Poetry for reference. Course 6 must be preceded by course 2. M., W., F., at 9. Assistant Professor Graves.
10. **Advanced Composition.** Individual work is planned in this course for upper classmen who desire to continue practice in one or more of the forms of composition studied in preceding courses, or who seek criticism of articles intended for publication in newspaper or magazine. Each student will meet the instructor at stated periods for criticism and assignments. Course 10 may be undertaken at the beginning of any term. Credit one hour, limited to three terms. Professor Denney.
12. **Problems in Rhetoric and Criticism.** Two hours a week, through the year. This course begins with a short series of lectures on the Development of Rhetorical and Critical Theory, after which

each student undertakes the thorough investigation of some one problem in rhetoric and criticism, reporting results each week. Open to advanced undergraduates and to graduates. Tu., 3 to 5. Professor Denney.

13. **The Teaching of English.** Once a week through the year. A discussion of principles and methods, plans for courses, and the reports of the English Conferences. Each member of the class will present a paper each term upon a subject assigned for investigation. Course 13 is open to advanced undergraduates and to graduate students. W., at 2. Professor Denney.

ENGLISH LANGUAGE.

15. **History of English and Development of Prose.** Twice a week through the year. Text-books, Emerson's Brief History of the English Language, and Garnett's English Prose. Tu., Th., at 9. Assistant Professor McKnight.
16. **Old English Prose and Poetry.** Twice a week through the year. Text-book, Sweet's Anglo-Saxon Reader. At first, attention will be paid to the purely linguistic features, the relations of Early English to the kindred Teutonic languages; later will be studied the beginnings of English literature in prose and poetry. M., W., at 9. Assistant Professor McKnight.
17. **Beginnings of English Story.** Beowulf and minor Old English narrative poems studied in connection with the related epic and romantic stories in Norse and in early German. First term. Celtic (mainly Arthurian) story in English studied in connection with the related stories in Celtic and in French. Second term. English stories belonging to the Charlemagne cycle. Third term. Not offered in 1903-4.
18. **Middle English Prose and Poetry.** Twice a week through the year. First will be studied the development in sound and in orthography; later, the transition in literature, and the evolution of modern verse. Open to advanced undergraduates and to graduate students. Tu., Th., at 11. Assistant Professor McKnight.

GRADUATE COURSES.

20. **Graduate Courses.** Under this number, courses are arranged at the beginning of each year to meet the needs of individual students desiring to pursue graduate work along either of two lines: (a) Rhetorical Theory and Criticism; (b) Old and Middle English Philology. Hours arranged. Professor Denney, Assistant Professor McKnight.

PUBLIC SPEAKING.

22. **Declamation.** Twice a week through the year. Course 22 must be preceded by course 1. Tu., Th., at 10. Assistant Professor Dickinson.
23. **Debates.** Twice a week, first and second terms. Course 23 must be preceded by course 3. Limited to twenty members. W., 3 to 5. Assistant Professor Dickinson.

24. **Ext mpore Speaking.** Twice a week. Third term. Course 24 must be preceded by course 3. W., 3 to 5. Assisant Professor Dickinson.
25. **Orat ry.** Twice a week through the year. Analysis of noted orations; the writing and delivering of original orations. Course 25 must be preceded by courses 2 and 3. Limited to twenty members. Tu., Th., at 2. Assistant Professor Dickinson.

Romance Languages and Literatures

(University Hall, Rooms 35 and 34.)

PROFESSOR BOWEN, ASSOCIATE PROFESSOR BRUCE, ASSISTANT PROFESSOR BATCHELDER, MISS DE NAGY.

I. FRENCH.

NOTE — Courses 1 and 2 in French must precede all others.

1. **Elementary French.** Four hours a week throughout the year. M., Tu., Th., Fr., at 10 or 11. Tu., W., Th., Fr., at 2. Three sections. Grammar: Fraser and Squair's or Grandgent's Essentials. Reader: Whitney's (Parts I and II), or Laboulaye's *Contes bleus*, or Bowen's First Scientific French Reader; historical and narrative prose; one or more prose comedies. In this course the study of the language is taken up from the beginning. Stress is laid upon the acquisition of a correct pronunciation, after which the entire energy of the student is directed toward the attainment of a full and accurate reading knowledge of the language. Grammar and composition are made to contribute to this end. Sight reading is emphasized. Section I: M., Tu., Th., F., at 10, Associate Professor Bruce; Section II: M., Tu., Th., F., at 11, Professor Bowen; Section III: Tu., W., Th., F., at 2, Associate Professor Bruce, or Miss De Nagy.
2. **Modern French Literature.** Four hours a week throughout the year. Two sections, at 10 and 11, M., Tu., Th., F. The study of the literature as such is now taken up. The work of the year covers a survey of two or more of the following subjects: (1) *Contes*; (2) *Novels* (Balzac); (3) *Lyric Poetry* (Bowen's *Modern French Lyrics* or Canfield's *French Lyrics*); (4) *Romantic Drama* (Hugo). *Prose Composition* (Bouvet or Chardenal). Lectures supplement the work; private reading required; systematic attention given to syntax and idiom. Open to those who have completed course 1, or who have received credit for French as an entrance subject. Section I: M., Tu., Th., F., at 10; Assistant Professor Batchelder. Section II: M., Tu., Th., F., at 11; Associate Professor Bruce.
4. **French Comedy of the Seventeenth Century.** Three hours a week. M., Th., F., at 10. First term. Study of the growth of French Comedy, with work centering upon Molière (three plays) and Regnard. Lectures and collateral reading. Professor Bowen.

Given biennially, alternating with course 16. Not offered in 1903-1904.

5. **French Tragedy.** Three hours a week. M., Th., F., at 10. Second term. Lectures and readings. Corneille, Racine, and Voltaire. Critical study of *Le Cid*, *Andromaque*, *Esther* and *Zaire*. Professor Bowen. Given biennially. Not offered in 1903-1904.
6. **Seventeenth Century Prose.** Three hours* a week. M., Th., F., at 10. Third term. Critical study of Descartes, Pascal, Bossuet and others (Warren's Selections), supplemented by lectures. Professor Bowen. Given biennially. Not offered in 1903-1904.
7. **Advanced Prose Composition.** One hour a week throughout the year. Tu., at 10. Bouvet's and Cameron's French Composition. Intended for advanced students who desire special training on the practical side of the language. Professor Bowen.
8. **Literary Criticism in France.** Two hours a week. Tu., Th., at 9. First term. Readings and lectures. Selections from Sainte-Beuve, Faguet, Lemaitre and others. Associate Professor Bruce.
9. **Recent French Prose.** Two hours a week. Tu., Th., at 9. Second term. Rapid reading with lectures. Critical study of some of the leading prose writers of the present, such as Bourget, Daudet, Loti, Zola and others. Associate Professor Bruce.
10. **Practice in Speaking and Writing French—Based on Daudet's Stories.** Two hours a week. Tu., Th., at 9. Third term. Students wishing to elect this course must have the consent of the instructor in charge. Associate Professor Bruce.
11. **French Travel-Writers.** Two hours a week. Tu., Th., at 9. First term. Readings and lectures. Scenes of travel from Gautier, Hugo and Dumas. Associate Professor Bruce. Alternates with course 8. Not offered in 1903-1904.
12. **Eighteenth Century Prose.** Two hours a week. Tu., Th., at 9. Second term. Readings and lectures. Selections from Voltaire (ed. Cohn and Woodward) or others. Associate Professor Bruce. Alternates with course 9. Not offered in 1903-1904.
13. **Advanced Conversational Practice. Based on Stories of Coppee and Maupassant.** Two hours a week. Tu., Th., at 9. Third term. Students wishing to elect this course must have the consent of the instructor in charge. Associate Professor Bruce. Alternates with course 10. Not offered in 1903-1904.
14. **French Seminary A.** Three hours a week throughout the year. M., W., F., at 9. Open only to fourth-year students of French, who have completed courses 1, 2, 4, 5, 6 and 7, or an equivalent. Given biennially. Not offered in 1903-1904. The subjects for the year 1904-1905 will probably be: (1) The Development of the French Novel, and (2) Recent Tendencies of French Drama. Toward the close of the year several lectures will be given on Methods of Teaching French and the Teacher's Equipment. Professor Bowen.

15. **French Seminary B.** Three hours a week throughout the year. M., W., F., at 9. The same conditions as in course 14. Given biennially. For 1903-1904 the subjects will be: (first half-year) Old French (Clédat, Morceaux choisis), with emphasis of la Chanson de Roland (Paris); (second half-year) Sixteenth Century French (Darmesteter et Hatzfeld, Morceaux choisis), with critical study of Montaigne. Professor Bowen.
16. **French Comedy of the Eighteenth Century.** Three hours a week. M., Th., F., at 10. First term. Lectures on the growth of French Comedy, with work centering upon Marivaux and Beaumarchais. Professor Bowen.
17. **French Society in the Seventeenth Century.** Three hours a week. M., Th., F., at 10. Second term. With special reference to the Précieux Movement. Crane's Selections. With lectures. Professor Bowen.
18. **Precursors of French Romanticism.** Three hours a week. M., Th., Fr., at 10. Third term. Rousseau, Chateaubriand (Bowen's Atala and René) and Madam de Staël. With lectures. Professor Bowen.

II. ITALIAN.

1. **Elementary Italian.** Two hours a week throughout the year. M., W., at 1. Grammar (Grandgent's or Edgren's), and Bowen's First Italian Readings. Comedy (Goldoni), and introduction to Dante (selections from Inferno). Students contemplating this course are advised to postpone such election until they have completed French 1, or its equivalent. Associate Professor Bruce. Omitted in 1903-4.

III. SPANISH.

1. **Elementary Spanish.** Four hours a week throughout the year. Two sections. M., Tu., Th., F., at 11. Tu., W., Th., Fr., at 3. Grammar (Edgren's or Loiseaux's), and Reader; (Matzke's or Ramsey's) stories and plays; composition and conversation. Assistant Professor Batchelder.
2. **Advanced Spanish.** Two hours a week throughout the year. T., Th., at 3. The modern novel; classical drama; Don Quixote; with lectures; advanced composition and conversation. Open to those who have completed course 1. Professor Bowen.

Sanskrit

(See Germanic Languages.)

Sociology

(See Economics and Sociology.)

Spanish

(See Romance Languages.)

Zoology and Entomology

(Biological Hall, Rooms 3, 4, 7, 8, 9 and Third Floor.)

PROFESSOR OSBORN, ASSOCIATE PROFESSOR HINE, ASSOCIATE PROFESSOR LANDACRE, MR. MORSE, MR. SANDERS.

Instruction in this department is largely by the laboratory method with lectures and use of text or reference books, the effort being to lead the student to observe and think for himself. The various courses are intended to provide instruction in the elements of the science, familiarity with methods of study and investigation, and opportunity for special research involving field, laboratory, museum and library work. The adjacent fields, wood, lake and river; the various well equipped laboratories, extensive collections and libraries furnish excellent opportunities for every phase of the study.

The department occupies the first and third floors of the fine new Biological Hall providing two lecture rooms, one general and five special laboratories, museums, offices for professor and assistants, besides room for storage, work shops, aquaria, cold-storage, photography, etc. The laboratory equipment includes microscopes, microtomes, incubators, injectors, etc., for most approved methods of work in morphology, embryology and neurology. The collections include a fine series of skeletons, a number of large mammals, series of the birds of Ohio, of the birds of North America, of Ohio fishes, of mollusks and especially rich collections of insects particularly in Odonata, Hemiptera and Diptera.

The ZOOLOGICAL MUSEUM is located on the ground floor of the wing of Biological Hall. The foundations of a zoological museum have been laid and the work begun on a generous plan. Every effort is being made to secure and preserve excellent specimens in all groups of animals. Not only the adult animals are preserved but the preparatory stages as well, their work and architecture, in fact all that can illustrate the life-history and habits.

Among special features are the Wheaton collection of birds of Ohio, numbering about 1,000 skins; a collection of North American birds, about 1,500 skins, representing very fully the North American fauna; a number of fine specimens of larger mammals, moose, hippopotamus, deer, tiger, peccary, lion, tapir, etc., most of which have been generously donated by Sells Brothers; a collection of about 3,500 molluscan shells; a fine series of Ohio fishes; numerous reptiles, amphibians, etc.

There is an excellent series of skeletons, crania and alcoholic material for courses in comparative anatomy.

The collection of insects is being rapidly enlarged and the purchase of the Kellicott collections of Odonata makes it especially rich in that order.

Professor Osborn's private collection of Hemiptera is deposited in the department and available to students for comparison and study.

The Department of Zoology and Entomology possesses a special library the nucleus of which was the scientific library of the late Professor Kellicott which was generously donated to the department. This has

been increased by gifts of special papers by a number of the leading investigators of the country and will be enlarged as rapidly as possible. The private library of the professor is also accessible for reference.

The courses in zoology are based on an elementary year's work, course 1, after which there is opportunity to diverge along lines of morphology, embryology and taxonomy. Students contemplating advanced work in these lines should take course 1 by the second year. For preparation for study of medicine, course 2, 19 and 20 or 21 are advised. For advanced experimental or research work preparation in chemistry, physics and botany is essential and ability to read scientific French and German should be acquired by the third year.

1. **Invertebrate and Vertebrate.** Open to first year students and preliminary to other courses. Three times a week. Invertebrate, first and second term; Vertebrate, third term. This course includes a general discussion of groups, dissection of types and an outline of classification. Lecture. Tu., Th., at 8, or M., F., at 10; Professor Osborn. Associate Professor Landacre. Laboratory, Sec. I: M., 2-4; Sec. II: Th., 2-4; Sec. III: F., 2-4.
2. **Comparative Anatomy of Vertebrates.** Must be preceded by course 1 or equivalent. Three or five times a week. Three terms. One hour quiz; two or four periods laboratory Wiedersheim's Comparative Anatomy of Vertebrates is used as a basis. Quiz, W., at 1; Laboratory, W., Th., F., 1-4. Associate Professor Landacre.
12. **Gross Anatomy of the Frog.** Must be preceded by course 1. Three or five times a week. First term. Ecker's Anatomy of the Frog and Huxley and Martin's Practical Biology. Laboratory, W., Th., F., 1-4. Associate Professor Landacre.
13. **Minute Anatomy of the Frog** Must be preceded by course 1. Three or five times a week. Second term. Continuation of 12, but devoted particularly to a study of the tissues. Laboratory, W., Th., F., 1-4. Associate Professor Landacre.
14. **Embryology of the Frog.** Must be preceded by course 1. Three or five times a week. Third term. Laboratory, W., Th., F., 1-4. Associate Professor Landacre.
15. **Invertebrate Morphology.** I. Must be preceded by course 1. Three or five times a week. First term. Devoted to lower Invertebrates, especially Protozoa and Coelenterata, Parker and Haswell, Lang, McMurrick, Shipley and other works are used for reference. Lecture, Tu., 2; Laboratory, M., Tu., W., Th., F., 2-4. Professor Osborn.
16. **Invertebrate Morphology.** II. Must be preceded by course 1. Three or five times a week. Second term. Will usually be devoted to Worms and Mollusks. References as in 15. Lecture, Tu., 2; Laboratory, M., Tu., W., Th., F., 2-4. Professor Osborn.
17. **Invertebrate Morphology.** III. Must be preceded by course 1. Three or five times a week. Third term. Usually devoted to Arthropoda. Above references and Packard's Text-book of Entomology. Lecture, Tu., 2; Laboratory, M., T., W., Th., F., 2-4. Professor Osborn.

18. **Invertebrate Embryology.** Must be preceded by course 1. Three or five times a week. Three terms. Korschelt and Heider used as a basis. Lecture, Tu., 2; Laboratory, M., Tu., W., 1-4. Professor Osborn.
19. **Vertebrate Embryology: Karyokinesis, etc.** Must be preceded by course 1. Three or five times a week. First term. Hertwig, Marshall, Balfour, Minot, Foster and Balfour are used as references. Lecture, M., 1; Laboratory, M., Tu., W., 1-4. Associate Professor Landacre.
20. **Vertebrate Embryology: Chick and Mammal.** Must be preceded by course 1 and 19. Three or five times a week. Second and third terms. Foster and Balfour used as a guide. Lecture, M. 1; Laboratory, M., Tu., W., 1-4. Associate Professor Landacre.
21. **Comparative Neurology.** Should be preceded by course 1 or equivalent, but is open to advanced students in psychology or pedagogy. Three or five times a week. Three terms. Includes study of brain and spinal cord in all classes of vertebrates. Eninger Lectures on the Central Nervous System is followed and numerous treatises and special papers consulted. Lecture, Tu., 1; Laboratory M., Tu., W., 1-4. Associate Professor Landacre.
22. **Cytology.** Three or five times a week. Advanced course. Must be preceded by course 1 and equivalent of 2 or 15, 16, 17. Three terms. Hertwig, Cell and Tissues, and Wilson, The Cell in Development and Inheritance. Professor Osborn.
23. **Entomology.** Must be preceded by course 1. Three or five times a week. Three terms. Advanced practical course for those wishing to investigate some special groups of insects or to fit themselves for professional work in Entomology. Lecture F., 1; Laboratory or field work, M., Tu., W., Th., F., 2-4. Professor Osborn.
24. **Ornithology.** Twice a week. Three terms. Lecture and laboratory work on Morphology, Ecology and classification of birds. Laboratory Tu., 9-11; Lecture M., 10. Associate Professor Hine.
25. **Research Work.** Advanced undergraduate or graduate course. Must be preceded by course 1, and the equivalent of 2 or 15, 16, 17 or 19 and 20. Five or ten times a week. Time to be arranged with individual students, or 9-12 and 2-5 through week. Professor Osborn.
26. **Seminar:** Discussion of assigned subjects, reports on research work, current literature, etc. Advanced and graduate students in the department are expected to register in this course. Once each week, three terms. One hour credit. F., 4. Professor Osborn, Associate Professors Hine and Landacre.
27. **Teacher's Course.** In this course, which is intended especially for teachers and those who intend to teach, the work will consist of a presentation of the principles of zoology; a review of typical forms; discussion of the methods of instruction and investigation, and a course in laboratory practice for those who have not had such work. Two lectures, one laboratory period per week. Three terms. Two or three hours credit. Time to be arranged. Professor Osborn, Associate Professor Landacre.

Enrollment

The enrollment of this College for the year 1902-1903 is as follows:

Graduate students	36
Undergraduate students	489
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Total	525
In the other Colleges of the University....	1202
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Total University Enrollment	1727
Names counted twice	15
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Net total	1712

Degrees Conferred in 1902

At the Commencement in June, 1902, the University conferred degrees on 141 candidates. Of these 59 were in the College of Arts, Philosophy and Science; the list being as follows:

ADVANCED DEGREES.

Doctor of Philosophy.

CARL GREGG DONEY, B. Sc., M. A., (Ohio Wesleyan University), LL. B.	Columbus
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Master of Arts

ROYAL ALBERT ABBOTT, B. Ph.	Ann Arbor, Mich.
LAMAR TANEY BEMAN, A. B. (Western Reserve)	Cleveland
WILBUR LATIMER DUBOIS, B. Sc.	Troy
CLARENCE PHILANDER LINVILLE, B. Sc.	Hagenbaugh
FRANK COWEN MCKINNEY, B. A.	Columbus
SAMUEL EUGENE RASOR, B. Sc.	Columbus
MAE BEATRICE SCHAFF, B. Ph.	Columbus
JOHN FRANCIS TRAVIS, B. A.	Green Camp
FREDERICK JARED TYLER, B. Sc.	Columbus

Master of Science.

WILLIAM C. MILLS, B. Sc.	Columbus
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FIRST DEGREES.

Bachelor of Arts.

JAMES ARLANDO GAUCH	West Manchester
NELLIE ROGERS HICKS	Centerburg
FREDERICK JOHN MUIRIE	Youngstown
HARLEY MARTIN PLUM	Ashville

CORNELIA THOMSON POWELL	Columbus
FERDINAND PHILIP SCHOEDINGER	Columbus

*Bachelor of Philosophy.
Latin Course.*

WILLIAM CHENEY BRYANT	Columbus
ELEANOR ELIZA CARSON	Harrisburg
KATHARINE B. CLAPP	Norwalk
AUGUSTA CONNOLLEY	Columbus
MARTHA DUDLEY HARTFORD	Atlanta, Ga.
BERTHA MARIE HOPKINS	Marysville
EDITH ESTELLE HOPKINS	Marysville
CORNELIA WILLIAMS MILLER	Columbus
GLENDORA MILLS	Marysville
HELEN MILLS	Gallipolis
EDNA ESTHER SALM	Columbus
BESSIE BATELLE TAYLOR	Columbus

Modern Language Course.

CARL CONRAD ECKHARDT	Toledo
SARAH BRYARLY GORDON	St. Marys
ELMA FOGG JENNINGS	Eaton
CAROLINE ANNIE MEADE	Columbus
ROY MORGAN	Greenland
ADA MAY NICHOLS	Chillicothe

English Course.

GERTRUDE HALM BELLOWS	Columbus
WILLIAM PITT BITTNER	Sandusky
JAMES WILLIAM CHANEY	Columbus
ORVILLE PORTER COCKERILL	Washington, C. H.
DENNIS ALOYSIUS DONOVAN	Columbus
SARA ETHEL HERRICK	Columbus
CLARA MAE HOPKINS	Marysville
CLARA PUTNAM HUDSON	Middleport
CHARLES CLIFFORD HUNTINGTON	Yellow Springs
DANIEL C. JONES	Jackson
MAX MOSES MATTHEWS	Vinton

EARL SADDLER McALLISTER	Columbus
LUCY HUNT POCKOCK	Columbus
SARA CAMPBELL SWANEY	East Liverpool
WILLIAM HARRY TAYLOR	Columbus
WILLIAM BURROUGHS WOODS	Garrettsville

Course in Commerce and Administration.

JOHN PORTER BOWLES	Columbus
DONALD DEAN HENSEL	Eaton
WALTER ASHTON RIDENOUR	Jackson

Bachelor of Science.

CHARLES HENRY CLEVINGER	Fletcher
ERNEST DOANE EASTON	Springboro
ARTHUR HUNGELMANN	Columbus
FRANK JOSEPH PRINCE	Millerstown
ALBERT JOHN SCHANTZ	Dayton

Summary

Advanced Degrees.

Doctor of Philosophy	1
Master of Arts	9
Master of Science	1
	<hr/>
	11

First Degrees.

Bachelor of Arts	6
Bachelor of Philosophy	
Latin Course	12
Modern Language Course	6
English Course	16
Commerce and Administration	3
Bachelor of Science	5
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	48
	<hr/>
Total	59



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